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TEACHING and computers

Published by Scholastic Inc. March 1984

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KATHY MARTIN THOUGHT METEOROLOGY WAS DULL UNTIL SHE DROVE A DOGSLED ACROSS ALASKA.

What can make meteorology come alive for Grades 7-9?

Weather or Not, the new Rand McNally electronic learning program, can.

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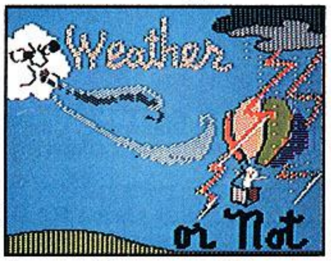
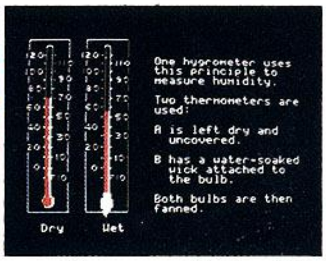




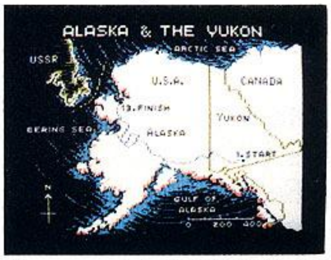
One hygrometer uses this principle to measure humidity.

Two thermometers are used:

A is left dry and uncovered.

B has a water-soaked wick attached to the bulb.

Both bulbs are then fanned.



An ideal companion program is *Time & Seasons,* a study of the earth's time zones and climates. Other exciting programs include *Unlocking the Map Code* where students master basic map and globe skills and *Choice or Chance?* where they discover how history is affected by geography.

Want to learn how you can bring social studies to life for your students? Call Peter McQueen at 1-800-323-1887. Or contact your Rand McNally representative.

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March 1984 Vol. 1, Issue 6

FEATURES

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Educate the public about computers with a schoolwide fair. There's no need for fuss and muss. Just follow this plan.

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31 Word Processing Primer
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Make Logo tools.

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Carnegie-Mellon Univ. may be first to make computers mandatory.

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Computers reshape work habits at college

The University of Illinois in Urbana-Champaign, for example, has established 46 computer centers where dents can go to do

For Home and School—We've just released numerous educational software programs into the public domain. These programs, written by educators, include courses in Business, Computer Science, English, French, Geography, History, Mathematics. The list goes on and on.

We're also working with major educational publishers to develop new software. For example, a significant portion of the well-regarded MECC courseware has been completely adapted for the Commodore 64. The Edufun™ series from Milliken will be available for home and school use in the near future, and over thirty early learning programs from Midwest Software will help children master the basics.

In addition, we've developed a complete set of software tools to make our educational computers even more useful. Take Logo and PILOT, for example. These popular languages have been completely adapted for the Commodore 64.

Our Educational Resource Centers, 250 strong, continue to provide teacher support in computer use in the classroom, and the number is growing!

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FROM THE EDITOR

On the Road Again

Contributing editor Shiela Swett has been on the road again! This time Shiela attended a computer fair at Horace Greeley High School in Chappaqua, New York. Elementary and secondary teachers, along with PTA members, conducted the fair to educate parents and other community members on computers.

"Chappaqua PTA members did most of the initial organizing," Shiela says. "Then on fair day, teachers and students helped them run workshops and booths."

The fair was a smashing success. It helped answer many of the questions teachers hear so often, like: "What's my son doing on those computers?" and "What home computers should I consider buying?"

After the fair, Shiela interviewed the fair's six organizers. All six had plenty of helpful hints for prospective fair holders, which Shiela dutifully recorded on her trusty notepad.

You won't want to miss Shiela's eyewitness account of the fair and the step-by-step advice she collected. It's all in **Set Up a Computer Fair**, page 20.

If you believe in music, turn to Lane Weiss' article, **Sounds of Music**, page 26. Although Lane is an elementary school music teacher, he says you don't have to be one to teach music. "All you need is a computer and a few music programs."

In his article, Lane discusses three sound-sational programs he uses with his students. He also provides you with supplementary music activities.

Word processing is fast becoming the most powerful tool for teaching language arts skills. In **Word Processing Primer**, page 31, teacher Tom Boudrot outlines five lively writing assignments that teach students how to use word processing software and, at the same time, give kids practice in writing effective sentences and letters of correspondence. The assignments are not your usual language arts activities. They're wild and wacky—especially tailored for intermediate grade humor.

Children will also enjoy the rocket program listed on **Kid's Page**, page 45. The program sends a rocket blasting into space. It can be run on most major computers.

If you're an Apple user, try the super-deluxe version below. Dave Kirchner worked this one out with his students in Denver, Colorado. It boosts rockets from a variety of launch pads, and with true style!

```
1 FOR S = 100 TO 250 STEP 10
2 SPEED= S
3 FOR T = 10 TO 1 STEP -1
4 HOME
5 PRINT T
6 FOR D = 1 TO 500: NEXT D
7 NEXT T
8 P = INT (30 * RND (1)) + 1
9 PRINT "WARNING! ROCKET BLASTING OFF FROM"
10 PRINT "LAUNCH PAD #";P;". CLEAR THE AREA."
11 FOR D = 1 TO 1000: NEXT D
12 HOME
13 VTAB 23
15 PRINT TAB ( P)"     *"
20 PRINT TAB ( P)"    * *"
30 PRINT TAB ( P)"   *   *"
40 PRINT TAB ( P)"   * U *"
50 PRINT TAB ( P)"   * S *"
60 PRINT TAB ( P)"   * A *"
70 PRINT TAB ( P)"   *   *"
80 PRINT TAB ( P)"   *   *"
90 PRINT TAB ( P)"  *     *"
100 PRINT TAB ( P)"   *     *"
110 PRINT TAB ( P)"    *****"
120 HTAB P + 3: FLASH : PRINT "!!!"
130 HTAB P + 4: PRINT "!"
140 NORMAL
150 FOR D = 1 TO 24: PRINT : NEXT D
160 NEXT S
170 END
```

■

Mary Dalheim

Editor

TEACHING and computers

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EDITORIAL

Offices: 730 Broadway, New York, NY 10003
Editor: Mary Dalheim
Assistant Editors: Lorraine Hopping, Lesli Rotenberg
Editorial Assistant: Wendy Caron
Production Editor: Leah Dilworth
Contributing Editors: Sandra Markle, Shiela Swett
Administrative Assistant: Debbie Michel
Art Director: Barnett Design Group
Designer: Susan B. Abbott

Editorial Director: Jack L. Roberts

PUBLISHING/ADVERTISING

Advertising Sales Manager: Denis O'Malley (212) 505-3489
Eastern U.S. Sales Manager: Paul Rothkopf, (212) 505-3486
New York Office: 730 Broadway, New York, NY 10003
Midwest Manager: Ray Barnes
Midwestern Representative: Cathy Mulder
Chicago Office: 400 N. Michigan Ave., Chicago, IL 60611 (312) 467-6888
West Coast Office: John Sabo, John Sabo Associates, P.O. Box 3085, Redondo Beach, CA 90277 (213) 379-8455
Manager, Advertising Production: Gay Siccardi
Production Coordinator: Emily Abramowitz
Special Projects Manager: Corona Gray-Moore, (212) 505-3485
Circulation Director: Terry Perkins

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PUBLISHING

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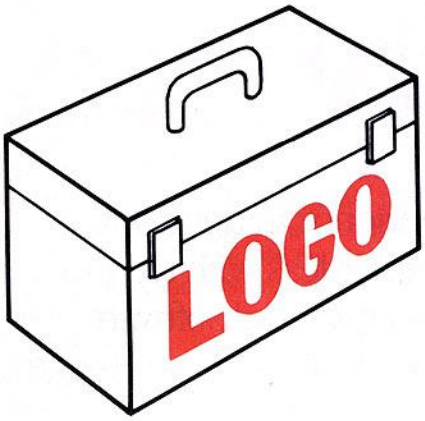
IDEA OF THE MONTH

Make Turtle Tools

By Dave Kirchner



Keep turtle tools in a toolbox.

Stored in a special toolbox in our computer center are three "turtle tools" my students use to explore Logo's turtle graphics. They are a chalkboard turtle, a set of individual compasses, and a large classroom compass. These three tools are easy to make and very useful!

- The **chalkboard turtle** (see illustration) is great for demonstrating turtle commands. Basically, it's a magnetic turtle you can move across the chalkboard in directions specified by commands your students give.

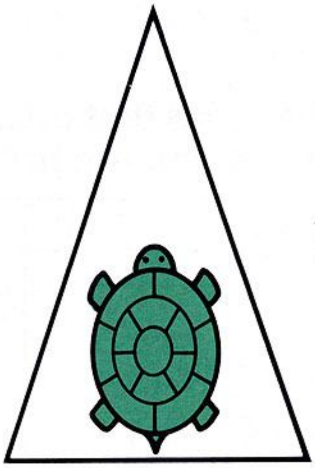
To make the chalkboard turtle, cut out a cardboard isosceles triangle, three inches wide at the base and five inches high. Glue a magnet on the back of the triangle. Draw a turtle on the front, with the head of the turtle pointing toward one of the angles, indicating the direction the turtle will move.

- Students can use the small, **individual compasses** to approximate the angle they must turn the turtle in order to face a desired location.

To make the individual compasses, have your students draw a circle, three inches in diameter, on a four-by-seven-inch index card. Instruct them to mark and label a line at every 45-degree interval, as shown in the illustration.

On the bottom of each card, draw a line three inches long and divide the line into equal units of 10, beginning at zero and ending at 100. This line represents the actual distance the turtle moves, in units of 10. (In turtle graphics, a 100-unit line, FD 100, is approximately three inches long.)

Show students how to use the compasses by having them make a simple shape on the computer. First, insert a Logo disk and tell students to draw a three-inch square. The gauge at the bottom of the compass shows students that they must move the turtle forward 100 units to make a three-inch line. (Input the command FD 100.)

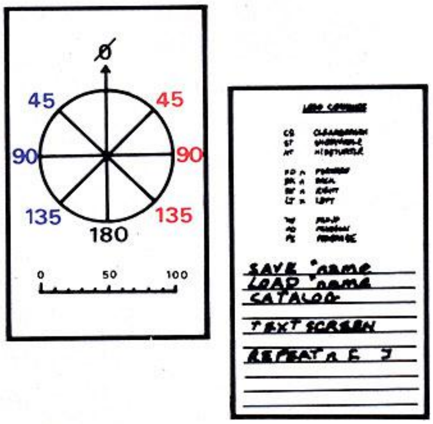


Act out commands with magnetic turtle.

Now that the turtle is ready to be turned, tell students to use the compasses to determine the angle that will position it to go right and begin to form a square. The compasses show turning right 90 degrees (RT 90) puts the turtle in the correct position. Instruct students to use their compasses to complete commands for the square. The final set of commands should be: FD 100, RT 90, FD 100, RT 90, FD 100, RT 90, FD 100.

As students become more comfortable using the compasses, make the shapes more challenging.

The back of the small compasses can be used as a handy reference for Logo command abbreviations.



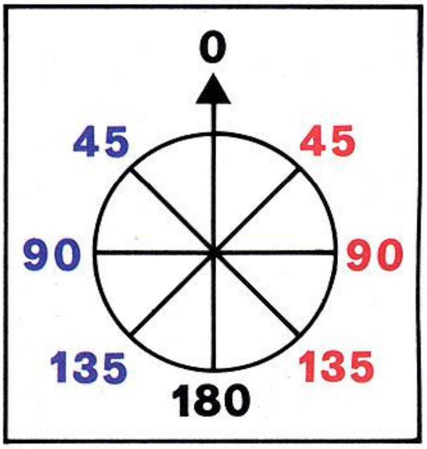
Estimate Logo angles with a compass.

- The **classroom compass** is similar to the individual compasses, but it is larger and can be used for classroom demonstrations.

To make it, draw a circle six inches in diameter on cardstock. Mark and label lines at 45-degree angles, just as your students did for the individual compasses. This classroom compass fits easily under the chalkboard turtle to demonstrate how the turtle turns to different angles.

Initially, these are all the tools you'll need for the turtle toolbox. However, once your students start using turtle graphics, they may want to add tools of their own.

Now that the tools are all assembled, place them in the toolbox—a fishing kit or a lunch box. Label and decorate the toolbox with colorful, self-adhesive paper. ■



Large compass helps with Logo demos.

Clare Sieffert

UPDATE

News for Computer-Using Teachers

Susan Gaber

Adults See Computers as Both Friendly and Frightening

Americans see the computer as both a friend and an adversary, according to a recent Harris poll. Even though 83 percent of the adults interviewed believe computers have made their lives easier and better, 77 percent worry about the future uses of computers. Respondents fear computers will invade their privacy, take away their jobs, and threaten their children's future. In a similar study done five years ago, only 64 percent of the respondents worried about computer abuses.

Free NASA Workshops

NASA Education Services will conduct free summer workshops using laser disk software for the microcomputer. The laser software, developed for elementary and secondary teachers, will provide classroom material on NASA space programs.

To request a workshop in your area, write: NASA Education Services Branch (LFC-9), NASA, Washington, DC 20546.

Software Contest

You have a great idea for an educational software program, but you just don't have the technical know-how to program it. Enter it in the EduWare Services Software Idea Contest. You could win up to $5,000 and have your idea developed into a software program. The deadline is March 31, 1984. For information, contact: Peachtree Software Inc. 3445 Peachtree Rd., NE, Atlanta, GA 30326; 800/24-PEACH.

Who Has the Most Educational Software?

There is more educational software for the Apple than for any other microcomputer, according to a survey by Sofsearch, a software information database service. There are currently 2,880 educational programs available for the Apple computer. The TRS-80, Commodore, and IBM PC computers follow with 1,858; 1,240; and 283 programs, respectively.

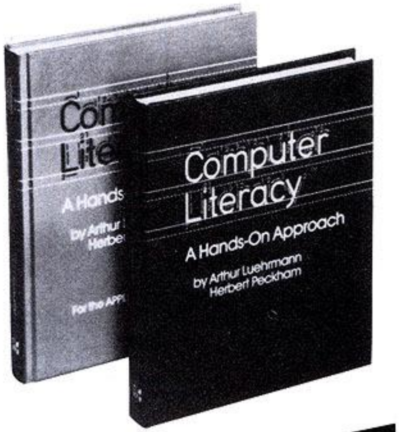
Electronic Learning Accepting "Educator of the Year" Nominations

Electronic Learning magazine is accepting nomination letters for its annual Educator of the Year awards program. An Educator of the Year award and five Distinguished Achievement awards will be bestowed. The six educators will be selected on the basis of their contributions for the advancement of educational technology.

Letters describing a candidate's accomplishments should be typed, double space, and no longer than three pages. The deadline for entries is April 2, 1984. Send letters to: *Electronic Learning,* 730 Broadway, New York, NY 10003.

$5 Art Programs for Atari 800s

Two teaching programs, *Art Through Computers* and *Computers Through Art,* are available for Atari 800 computers at $5 apiece from the Capital Children's Museum. The programs provide detailed lesson plans, software reviews, classroom activities, and suggestions on books and supplementary materials for teaching art to grades 6–12. Contact: Capital Children's Museum, 800 Third St., NE, Washington, DC 20002. ■



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Junior is flexible in other ways, too. It can be hooked up to a TV, an IBM Personal Computer Color Display, or to other monitors.

Another good idea is the Keyboard Adventure, a built-in instructional exercise for first-time users of all ages.

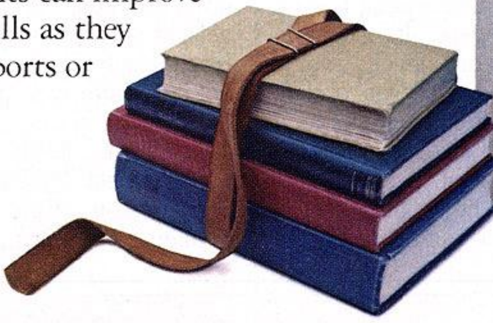
Or students can explore computer fundamentals at their own pace by using a tutorial program included with diskette-drive systems.

WHY JUNIOR APPEALS TO KIDS

PC*jr* is simple enough for youngsters, yet challenging enough for computer-savvy teenagers.

There are educational games that introduce children to basic math and spatial concepts. And a variety of interactive computer languages, including BASIC and LOGO, that teach students how to write their own programs.

By using an IBM word processing program, students can improve their writing skills as they prepare book reports or term papers.



A TEACHER'S AID

Teachers can use PC*jr* for their own work, too. For example, there is software that can be used to write lesson plans or prepare quizzes.

And many other IBM programs, originally created for other IBM Personal Computers, will also run on Junior.

PC*jr* is a tool for modern times that can give teachers more time to teach.

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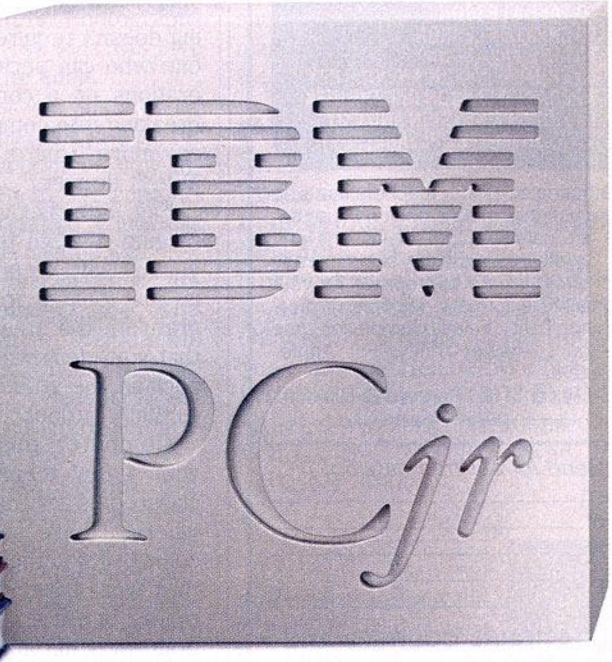
Other options, including an internal modem for telecommunications and a choice of printers, are also available.

To learn more about what PC*jr* can do in your school, contact your local IBM office and ask for the IBM Education Marketing Representative, or visit an authorized IBM PC*jr* dealer. For the store nearest you, dial 1-800-IBM-PCJR. In Alaska and Hawaii, 1-800-447-0890.



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IN MY OPINION

Time to Teach Computer Ethics

By Joseph W. Kmoch

When I saw the movie *War Games,* I was appalled at the cordial reception lauded on the main character. Although the young protagonist broke into the Defense Department's computer system, he was regarded as a hero. Then I realized that it was a movie—only fiction. Or so I thought.

Only a few weeks later, the FBI investigated a group of Milwaukee teenagers who gained access to the computers of several large organizations, including the Memorial Sloan-Kettering Cancer Center in New York City and the nuclear weapons laboratory in Los Alamos, New Mexico. This was not fiction—it happened!

Even worse than the scandal, though, was the reception the perpetrators received. Because two of the teenagers involved in the operation are former students at the high school where I teach, I attended the congressional hearing. I saw representatives in Congress applauding the youths. They called them "whiz kids." But what these kids were doing doesn't require much talent. Anyone who can perform very basic operations on a computer knows that breaking into computers doesn't take any more "smarts" than breaking into a desk drawer.

Say you discover a student rummaging through the desk drawers in your classroom or office. He says he is "just looking around." Do you congratulate the student for discovering that your desk was unlocked? Do you applaud the student for being "intellectually curious?" I doubt it.

Computer misuse doesn't stop with a few teenagers. It occurs in classrooms of every level, everywhere. I have seen children trading copies of copyrighted programs as if they were baseball cards. Many don't realize that it is illegal to copy a program they did not buy legitimately.

Students use computers to plagiarize, too. Copying another student's work is easier to do on a computer—and harder for a teacher to detect. And it can be done without the owner's consent.

This behavior from young people is not surprising, considering the example of the adults who serve as their role models. I have attended computer club meetings where the primary activity is pilfering the latest software. And I've seen teachers use illegal copies of software in class. Yes, Virginia, teachers have been involved, too!

> *"Children and adults must realize their responsibilities as users of new technology."*

Both children and adults must realize their responsibilities as users of this new technology. As teachers, we can start by setting a good example with our behavior.

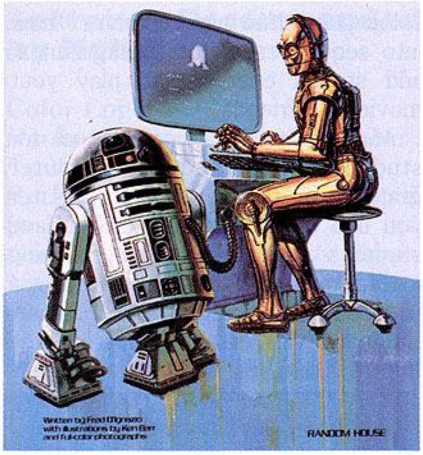
The next step is to develop a school or district policy statement that can be used as a springboard for discussing computer ethics. We must help students understand why certain rules and laws related to computer usage exist, and why they should be respected. We can do this through lectures, discussions, and role-playing activities designed to teach the difference between appropriate and inappropriate behavior when using computers.

I'm sure you wouldn't like someone rummaging through the personal belongings in your desk. We help our students understand why this is inappropriate behavior. Similarly, when dealing with computers, we need to teach children what does and does not constitute appropriate behavior. ■

Joseph W. Kmoch is Computer Teacher and Systems Manager at Washington High School in Milwaukee, Wisconsin.

Great Adventures with Computers

By Judy Simmons


Written by Fred D'Ignazio
with illustrations by Ken Barr
and full-color photographs
RANDOM HOUSE

C3PO and R2D2 discuss computers.

Reprinted by permission of Random House

Looking for adventure books that will expose your students to the world of computers? One of the most unusual fiction books that I have seen is ***Print Outs: The Adventures of a Rebel Computer*** (Nerve Press; 1982; $5.95), by Claudia Cornwall. Talk about computer oriented—the print is computer type on pin feed paper!

Written for nine- to twelve-year-olds, the book details the adventures of Edgar, a personable computer who finds ways to express himself, much to the dismay of his programmers. Computer concepts abound, and there is a handy glossary of terms for definition seekers.

The Video Avenger (Scholastic; 1983; $1.95), by Douglas Colligan is part of Scholastic's Twistaplot series, in which the reader becomes actively involved in a story by choosing the direction it will take. More than 20 different endings are possible for one story.

In this book, the reader has just won an ME-II computer. All of a sudden, the reader is trapped inside the machine with electronic dinosaurs and video warriors. He or she must decide whom to trust and which way to turn.

A more conventional fiction adventure is ***The Computer That Said Steal Me*** (Four Winds Press; 1983; $8.95), by Elizabeth Levy. Adam, a sixth grader, is so obsessed with owning a computer chess game that he steals one. When he gets the computer home, fear and guilt begin to haunt him. To ease his conscience, Adam tries to slip the computer back into the store, but he is caught and must face the consequences. The fast moving plot makes this book popular reading for sixth and seventh graders.

Instructive Handbooks

If you and your students are new to computers, these handy manuals may be just the tools you need to answer your many questions.

Fred D'Ignazio has combined the popularity of the *Star Wars* movies and the growing interest in computers in a manual for children called ***The Star Wars Question and Answer Book About Computers*** (Random House; 1983; $7.99). Throughout the book, C3PO and R2D2, the famous *Star Wars* robots, give brief, easy-to-understand answers about computers. Photographs enliven every page, so kids will love thumbing through the book.

While educators will also enjoy D'Ignazio's book, they will find that it lacks specific instructions on how to, where to, and when to use computers. For this information educators should turn to these handbooks.

The Montana Office of Public Instructions has compiled ***The Elements of Computer Education*** (Montana Office of Public Instructions; 1983; $7.50), a handbook that examines ways to integrate computers into curricula.

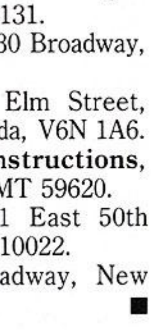
The handbook gives a simple outline of how to start a computer education program. Sample surveys, worksheets, and checklists are provided to help determine computer needs and goals. "Bright Ideas" and "Pitfalls" are scattered throughout the book to highlight proven successes and warn of possible problems.

Enrich/Ohaus has published a series of user-friendly handbooks, ***Apple, Atari, Pet, TRS-80,*** and ***TI For The Beginning Beginner*** (Enrich/Ohaus; 1983; $8.95). These books assume the reader knows nothing about computers. After introducing the parts of the computer, the books teach simple programming. Cartoon-style illustrations are scattered throughout the book. The built-in easels make the books easy to refer to when using the computer.

Another helpful series from Enrich/Ohaus is ***Free Software*** (Enrich/Ohaus; 1983; $8.95). The series covers the Atari, Commodore, Apple, and TI computers. Each book discusses free or inexpensive resources available, such as public domain software, users' groups, and electronic bulletin boards.

Publishers' Addresses

Enrich/Ohaus, 2325 Paragon Drive, San Jose, CA 95131.
Four Winds Press, 730 Broadway, New York, NY 10003.
Nerve Press, 5875 Elm Street, Vancouver, B.C., Canada, V6N 1A6.
Office of Public Instructions, State Capitol, Helena, MT 59620.
Random House, 201 East 50th Street, New York, NY 10022.
Scholastic, 730 Broadway, New York, NY, 10003. ■

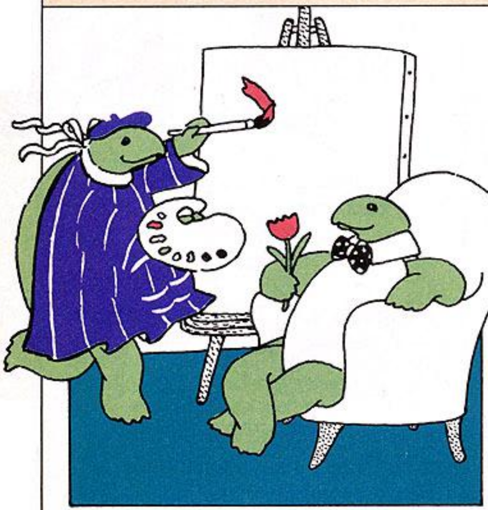


Judy Simmons is a librarian at the Robert E. Lee Elementary School in Denton, TX.

QUESTION CORNER

New Software for the Color Computer

By Molly Watt



Color Logo *has more graphics power.*

Goodies for the CoCo

Dear Molly: I'm tired of reading about all of the good software for the Apple computer. Can you recommend any programs for the TRS-80 Color Computer?

Gregg Ratner
Houston, TX

Here's good news for owners of the TRS-80 Color Computer. Now there's a simple implementation of Logo for your "CoCo."

Called *Color Logo,* this version resembles the original MIT Logo. The major difference is that it does not provide list processing (the ability to manipulate words). The author traded this ability for increased memory capacity and more turtle graphics features. One of those features, the HATCH command, lets users make up to 254 separate turtles on the screen. These turtles can draw and talk to each other.

The software is a great Logo innovation, although the limited debugging messages can make it hard to locate programming problems.

Some other new software packages were recently released for the Color Computer by Children's Computer Workshop. I've previewed the following programs: *Peanut Butter Panic, Taxi, Cookie Monster's Letter Crunch,* and *Ernie's Magic Shapes.* All are excellent for encouraging cooperative play rather than competition among young children. □

Printer Problems

Dear Molly: I want to print my students' screen graphics so they can take them home and show their parents, but our school printer won't print out graphics. Why not?

Aileen Edwards
Miami, FL

Some printers are not capable of printing graphics. To find out if your printer is, call the manufacturer or ask your school's computer dealer.

Other printers require a special interface card for graphics printing. For example, if you have an Apple, you may need a Pkaso (pronounced Picasso, like the artist's name) or a Grappler card. The cards, which are inserted inside your computer, contain switches that must be set to fit the particular computer, printer, and task.

Your manufacturer or dealer can tell you if you need an interface card, as well as whether you also need to write a program or buy software that tells the printer what to do.

If you just want to call up an image on a single screen and print it on paper, sometimes you can buy software that allows you to do this without an interface device. Once again, check with your manufacturer or dealer. □

What's New?

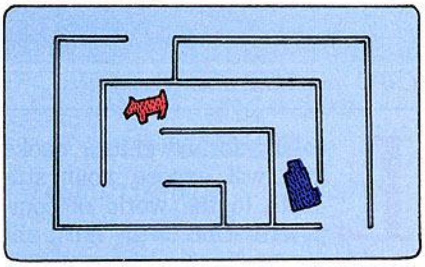
Dear Molly: Can you recommend any new programs that allow children to be creative?

Shawn Richards
Tacoma, WA

I know of two new programs that will excite Atari and Apple computer users. The first one, for Atari computers, is called *Moviemaker.* It teaches you how to create an animated film.

You can make your first movie with just five commands by following the clearly written manual. After that, you can draw your own shapes, color your drawings, combine them into sequences, select backgrounds, add special effects, and play your movies for friends.

Moviemaker is a perfect tool for students interested in computer graphics or the film industry. After you use the program in class, have students create flip animations using a thick pad of paper and drawing a progression of images in the corner. Students will enjoy comparing the two technologies.



Picturewriter *can create mazes.*

The second creative program, for Apple computers, is called *Picturewriter.* Students from five to fifteen years old can create shapes using this program and a joystick. Then they can make their shapes play tunes and games.

Picturewriter is different from other drawing programs because it lets you play with the image you create. You can race your creations, use them in a maze or as part of a game, or put on a show with them. □

Which Place Is Best?

Dear Molly: Our school is getting four computers. Should we put them in the library or in individual classrooms?

Eliot Abraham
Newport, VT

Put them on wheels! That way they can be moved together or individually around your school. Whatever your computing needs are now, they will probably change eventually. Making your computers mobile gives you the most flexibility now and in the future. □

QUESTION CORNER

Software Recommended by Molly:

Color Logo
Hardware: TRS-80 Color Computer
Age Level: Age 5–Adult
Price: $79.95 for disk (32K); $49.95 for ROM cartridge
Contact: Radio Shack/Tandy Corp., 1800 One Tandy Center, Fort Worth, TX 76102; 800/433-5682.

Peanut Butter Panic, Taxi, Cookie Monster's Letter Crunch, Ernie's Magic Shapes
Hardware: TRS-80 Color Computer
Age Level: Ages 7–10 for *Peanut Butter Panic* and *Taxi,* Ages 4–6 for others
Price: $19.95
Contact: Radio Shack/Tandy Corp., 1800 One Tandy Center, Fort Worth, TX 76102; 800/433-5682.

Moviemaker
Hardware: Atari (48K), joystick
Age Level: Age 12–Adult
Price: $60
Contact: Reston Publishing Co., Inc., 11480 Sunset Hills Rd., Reston, VA 22090; 800/336-0338.

Picturewriter
Hardware: Apple (64K), joystick
Age Level: Ages 5–15
Price: $39.95
Contact: Scarborough Systems, Inc., 25 North Broadway, Tarrytown, NY 10591; 914/332-4545.

Do you have a computer question? Send it to Teaching and Computers' *expert, Molly Watt. Molly teaches computer education courses at Keene State College in Keene, New Hampshire. Write her in care of* Teaching and Computers, *730 Broadway, New York, NY 10003.* ■

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CLASSROOM HAPPENINGS

By Lesli Rotenberg

Logo by Little People

Three fifth grade students are published authors, thanks to their teacher, Lynne Mass. The students in her science class at Abington Friends School, Jenkintown, Pennsylvania, helped her write a book called *Kids Working with Computers: An Apple Logo Manual for Turtle Graphics.*

When they began learning Logo in class, the 10-year-old students thought the instruction books were too sophisticated. So they decided to write a Logo manual that children could understand.

With Lynne's help, the children organized a format for the manual, decided what specifics to include, and proceeded to teach themselves turtle graphics. Each child was responsible for developing several lessons in rough form. Then Lynne tested the lessons in class with other students.

When the book was finished, the publisher sent contracts for the children and their parents to sign. He also sent letters to the young authors encouraging them to continue their writing.

The students took his advice and began their second book almost immediately, *Kids Working with Computers: A Texas Instruments Manual for Turtle Graphics.* This book has just been released.

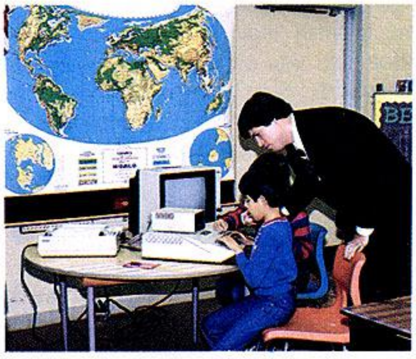
Both books are available from Trillium Press, Box 921, Madison Square Station, New York, NY 10159. They cost $2.95 each. □

FBI Agent in the Classroom

Why would an FBI agent visit a fourth grade class? In special agent Thomas Farley's case, it was to discuss computer crime.

Fourth grade students at Hawes School in Ridgewood, New Jersey, were particularly interested in computer crime. Many of them had seen *War Games.* And a new modem in the classroom sparked many questions about breaking into computer systems.

So teacher Elizabeth Holley invited special agent Farley to visit her class. He explained the laws for copying programs and using modems. He also explained how the FBI discovers illegal computer activities, as well as *why* and *how* they punish the perpetrators.



FBI special agent Thomas Farley helps Hawes student with modem.

Photo by Elizabeth D. Holley

Farley was impressed with the children's computer knowledge and dedication to ethics. He was surprised to hear that most of the children thought the courts have been too lenient with people who use computers inappropriately.

After the FBI agent's visit, the students practiced their word processing skills by writing him thank-you letters. □

The Computer Chronicles

The fourth grade newspaper at Olive Elementary School in Vista, California, includes articles written by Eskimo students at Tununak Elementary School in Tununak, Alaska.

Likewise, some of the articles in the Tununak school newspaper have California bylines.

Each school produces its own edition of a computer newspaper called *The Computer Chronicles,* incorporating material from its partner school. The schools exchange floppy disks containing student stories by mail. They also exchange completed newspapers on disk and paper.

At Olive Elementary, teacher Barbara Miller-Souviney assigns the students a different topic each week, like news, sports, weather, and life. The students use a program called *Computer Chronicles Prompter* to produce articles.

Barbara says her students' writing has improved since they began writing for the newspaper. They are more careful about spelling and punctuation. And they write more descriptively, so the Eskimo children will understand what life is like in California.

From student articles, the California kids learned that Eskimo children hunt and fish to get food for dinner and travel on motorized snow-ice vehicles called ski-doos.

Classes in Mexico City, Hawaii, and Arizona have joined the Computer Chronicles Network, too. Any school with an Apple computer can join the network. For $69.95, schools receive a *Computer Chronicles Prompter* in English and Spanish, a *Network Maildisk* for sending articles, teaching suggestions, and a connection with one school. Connections with additional schools cost $15 per year. For more information, contact Margaret Riel, Interlearn Inc., P.O. Box 342, Cardiff By The Sea, CA 92007; 619/942-0734. ■

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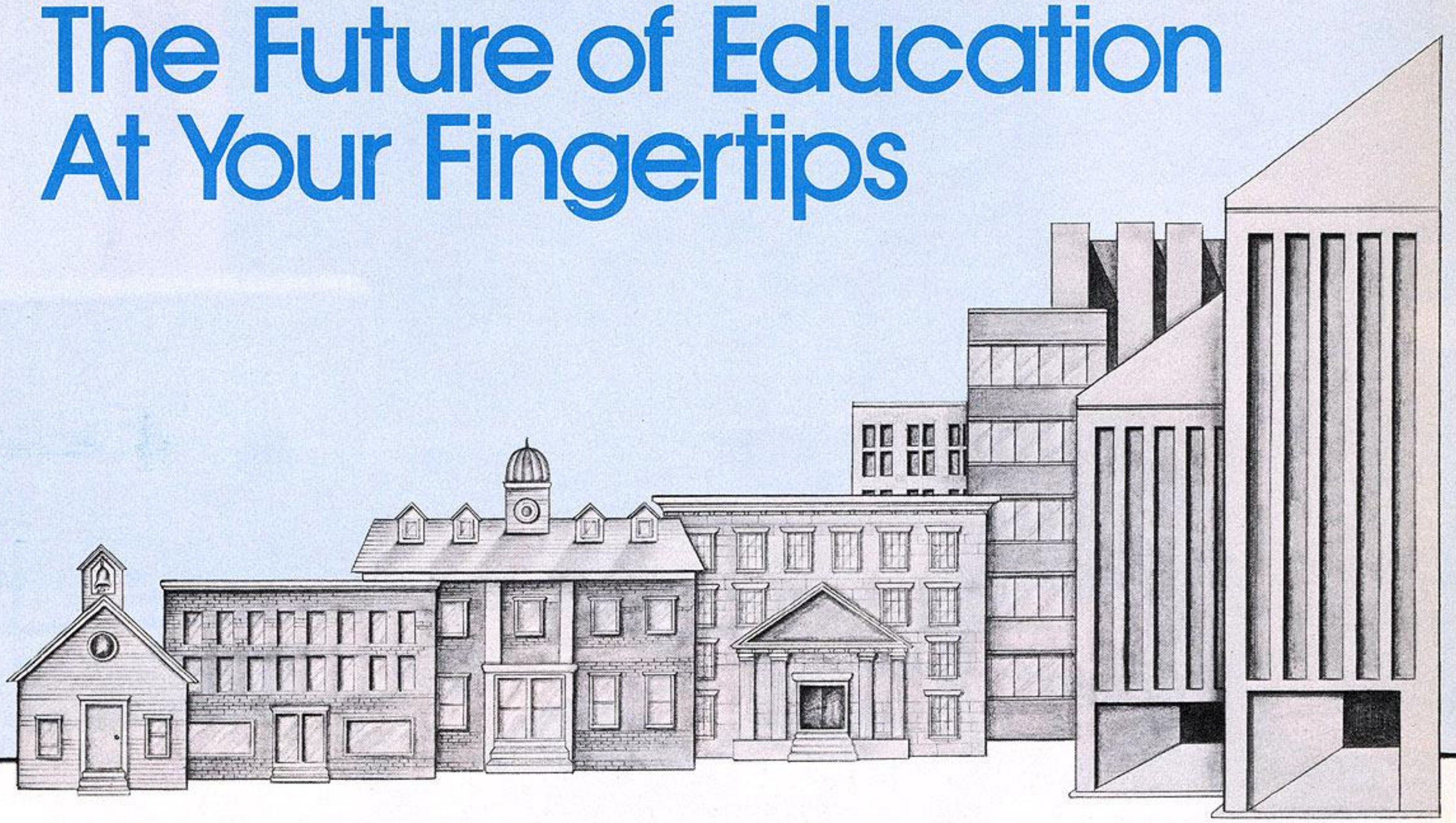

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List Price: Teacher's Manual - $18.75, Student Text - $9.95, Exam Set - $15, Classroom Set - $200. Deduct 20% for educational discount.

Explorer's Guide to Apple Logo — LCSI Version and MIT Version

Joan Moscovitch Webb, Peter Von Mertens and Maggie Neville Holmes

A complete introductory Logo package designed for elementary and junior high schools. "Discovery" theme leads students through Logo literacy. For novice teachers as well as students — no previous computer experience required to use this set effectively. Uses both theory and hands-on experience to introduce computer/Logo concepts. Over 50 illustrations make the Student Text an attractive learning tool. Four steps define activities: *Step One* — pre-computer literacy through paired instructions carried out by students. *Step Two* — introductory Logo commands explained. *Step Three* — examples introducing other Logo commands. *Step Four* — exercises and short programs which enrich the student's learning experience.

List Price: Teacher's Manual - $4, Student Text - $13, Activities Set - $15, Classroom Set - $250. Deduct 20% for educational discount.

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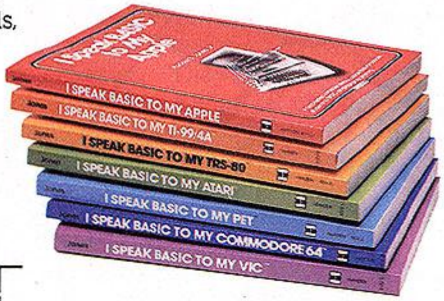
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C 64	6162	6172	6182	6152
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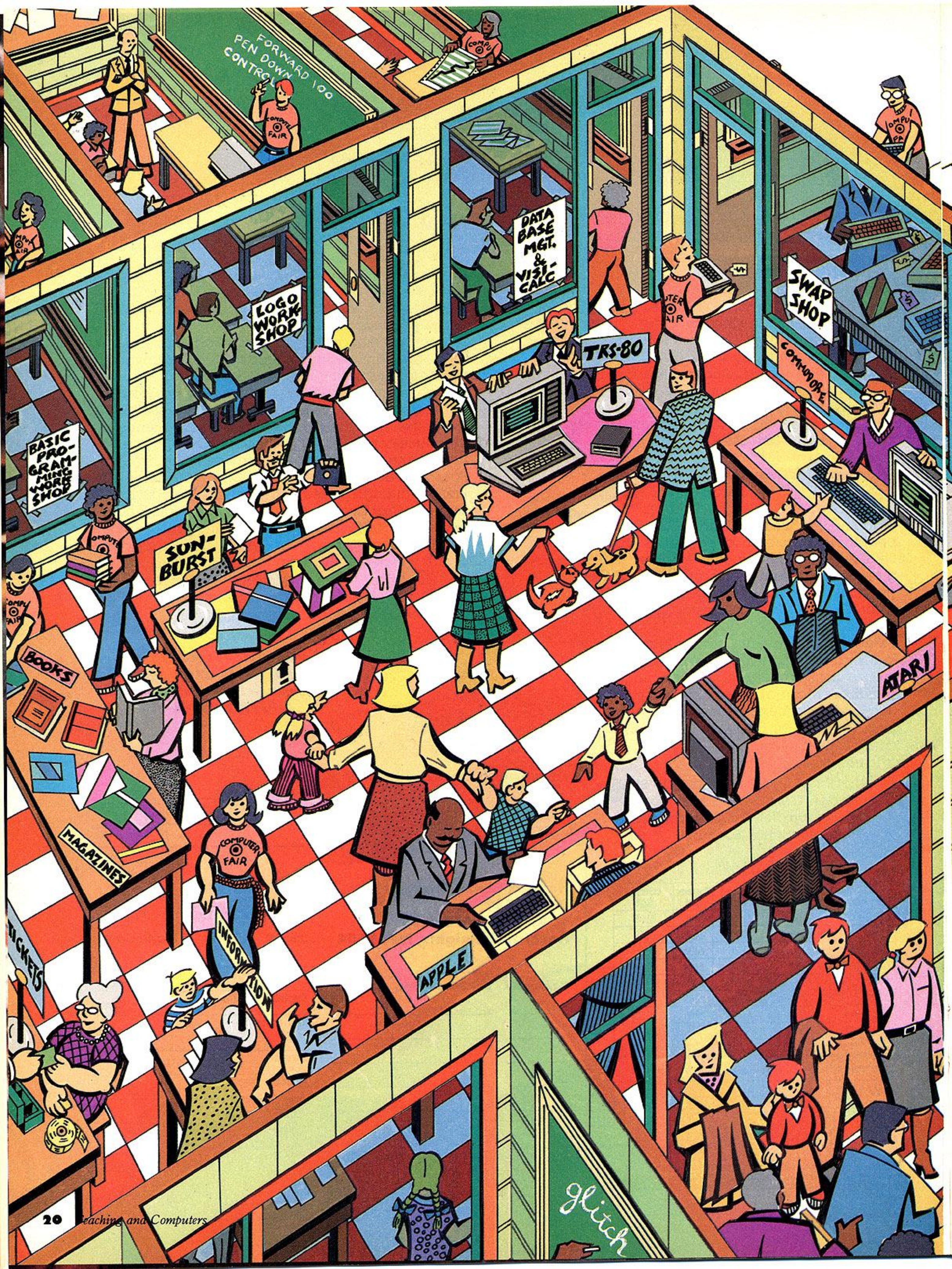
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SET UP A COMPUTER FAIR

By Shiela Swett

Here's a no-muss, no-fuss way to host a computer fair at your school.

It was 11 o'clock Saturday morning, when more than 600 people began filing through the doors of Horace Greeley High School in Chappaqua, New York, for the "Computer Know-How" fair. An admission charge of $2 for adults and $1 for children under 12 didn't seem to diminish the crowds.

Each member of the crowd had a mission. Parents had come to find out which computers to buy for their homes. Older community members came to see how the next generation was being educated. And children came to show off their computer prowess and to learn some new tricks.

Elementary and secondary teachers, along with PTA members, were prepared to deliver. They had set up a computer fair designed to educate and entertain. They had arranged booths with more than 50 borrowed computers for the public to dabble with, tables that overflowed with computer literature, workshops on everything from BASIC programming to word processing, and software demonstrations galore.

The fair itself used two floors of the school building, plus the cafeteria for lunch. Lunch was cooked and served by the sophomore class, who used the event as their major fund raiser. They also provided baby-sitting services for children who were 12 years old or younger.

"I came here with a million questions," said one fair-goer. "I'm leaving with the answers and so much more."

If you and other members of your school district have been deluged with questions, such as "What computer should I buy my daughter?" "What software should we use?" and "Why are computers so important to my son's education?" you might want to set up your own computer fair. The fair doesn't have to be a heavy burden for teachers. Get your local PTA or PTO to do the time-consuming work! That's what the Chappaqua school district did.

The fair's organizers suggest you follow these steps when setting up a computer fair at your school:

1 Form a Committee

Organize a committee of seven to 10 members. Try to include parents, administrators, teachers, and students in the planning.

2 Set Objectives

Consider the size of the facilities available to you. Then decide on the size of the audience you could, or wish to, accommodate. Will you invite only parents and teachers? Or will you invite other family members and community members, too? Also think about the goals you wish to accomplish. Will you focus on home or school applications? Do you want to raise money?

3 Plan the Funding

Decide how you will fund the fair. Will you charge admission? If so, how much per person? You can get hardware and software vendors to help

(continued)

"Hosting a computer fair for your school district is a great way to answer parents' questions and to get everyone in your community involved with computers."

(continued from page 21)

you fund the event by charging them a small fee in exchange for an exhibitor's booth at the fair. To find vendors, contact the public relations or marketing offices of companies that produce computer products for schools and homes. (Check *Teaching and Computers* Advertisers' Index on page 69 of this issue for some company names.)

Vendors may also be willing to contribute computer products for a raffle. A raffle would offset expenses, as well as attract people to the fair.

Still another way of raising money is to sell refreshments at the fair.

4

Get Approval

Once you are organized, approach the school board and school administration for approval. You will need to reserve building facilities.

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Signs point to workshops and demos.

5

Set Time and Place

Give yourselves at least four months to organize. Beware of scheduling conflicts with holidays or sports events.

6

Delegate Responsibilities

Give each committee member a precise task and a specific deadline for completing it. These responsibilities should cover setting up booths, workshops, and perhaps even a swap shop where computer owners can buy and sell used computer items. (See checklist, page 24, for specific assignments.)

Two students demonstrate software.

"At almost every computer fair, you'll find one room that is jammed with people. That's the room where the speaker is discussing 'Which computer is best for me?'"

7 Select Workshop Topics

Workshops give parents and community members an opportunity to ask questions and experiment with computers. To interest everyone, include a variety of topics. Following are some must-discuss subjects recommended by the Chappaqua fair organizers:

WHICH COMPUTER IS BEST FOR ME?

At almost every computer fair, you'll find one room jammed with people. That's the room where the speaker is discussing, "Which computer is best for me?"

There are two ways to present this topic. One way is to have one very alert and knowledgeable speaker, with a display of each of the most popular home computers. The speaker explains each machine's strengths and weaknesses for at-home use, demonstrates each computer, and provides the latest prices for the machines and their peripherals. A question-and-answer period follows.

A tableful of computer publications attracts browsers.

A second method is to invite one speaker per machine type. Use parents who can explain why they purchased their particular computers. This could lead to a lively debate with plenty of audience participation. Sample machines should be available to demonstrate their strengths.

WHAT'S DOING IN OUR SCHOOLS?

For those parents who really want to know what is going on at school and who have a desire to express their own opinions, schedule a panel discussion on the subject. Invite faculty members to describe their own in-class use of the computer. Use representatives from elementary, junior high, and high schools. Then open up the discussion to parents in the audience.

Although this is an important subject, it won't attract a crowd. Many parents will figure that they can get this information another time.

You can educate the abstainers in other ways. One way is with decorations. Throughout the fair, hang samples of students' computer work, like Logo designs, BASIC program listings, and illustrated stories or papers typed with a word processor.

Also, let students demonstrate their expertise firsthand by teaching parents to use computers or by demonstrating their own programs.

Another method is to include a written description of your school's computer plans in the program each participant receives. That way parents can take it home and read it at a convenient time.

HOW-TO WORKSHOPS

You simply must include workshops on how to program in BASIC and Logo. Because these are the computer languages most often used in schools, parents want to know how they work. You can teach the basics in a workshop that is fun, low key, and hands-on. Use student samples to demonstrate programming concepts that you don't have time to cover in the workshop.

Other topics that parents are curious about include word processing, database management, modems, and recording financial data on software, such as VisiCalc. Workshops on these subjects could describe what they are and their practical applications at home. Whenever possible, use students or audience members for demonstrations.

Many people are also interested in the future of computing. Call a discussion on the subject "Looking Ahead." Include information about robotics and artificial intelligence. Invite someone to demonstrate how a robot works.

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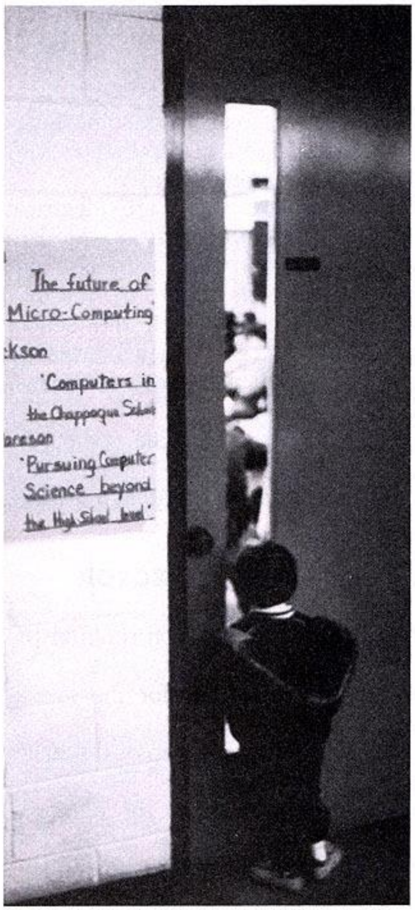

The future of Micro-Computing'
kson
'Computers in the Chappaqua School
ereson
'Pursuing Computer Science beyond the High School level'

A future computer user peeks in a workshop at the Chappaqua computer fair.

"To raise money for your computer fair, you might want to charge hardware and software vendors a small fee in exchange for exhibitors' booths at the fair."

JOB CHECKLIST FOR FAIR PLANNERS:

Every computer fair needs a committee to plan it. Once you have formed a committee of at least seven members, give each person a specific duty to perform. Following is a list of suggested assignments.

☐ PUBLICITY DIRECTOR

Choose someone aggressive to handle publicity. This person should:

- Work with local newspapers and radio and TV stations.
- Send flyers about the fair home with students.
- Organize a student contest to make the best poster advertising the event. Then place the posters in key locations, like grocery stores and pharmacies, throughout the community.

☐ TECHNICAL DIRECTOR

This person should have some technical knowledge and experience with computers. Duties include:

- Making sure there are electrical outlets for each computer.
- Setting up modems in rooms with telephone outlets.
- Communicating with the school maintenance crew. (Their knowledge of the building will prove indispensable on fair day.)
- Making sure all of the computers work.
- Having backup computers available.

☐ DECORATION & REFRESHMENT DIRECTOR

This job includes:

- Making signs for each room in the fair.
- Making name tags for the speakers.
- Designing a large map of the building's layout.
- Organizing displays of students' computer work.
- Overseeing the refreshment service. (Selling refreshments is a great opportunity for students to raise money for class projects.)

Parents look on as students demonstrate software programs.

Photos by Steve Swett

☐ FINANCIAL DIRECTOR

The financial director must:

- Set a budget and keep track of expenses.
- Keep track of costs, including printing, mailings, speakers' fees, and custodial services.
- Make sure the school carries insurance to protect vendors.
- Provide security for equipment left overnight at the school.

☐ STUDENT COORDINATOR

This person should be familiar with the students. Duties include:

- Organizing dependable students to act as guides, to demonstrate software, and to serve as computer tutors.
- Overseeing students in providing refreshments, baby-sitting services, or other services, such as car washing.

☐ VENDOR COORDINATOR

This person must begin work at least three months ahead of time. The job consists of:

- Inviting the designated vendors to attend and allowing them one month to reply.
- Setting up the vendors so they have enough room for their displays.
- Supervising them so they don't become competitive or overbearing.

☐ WORKSHOP & SPEAKER COORDINATOR

Choose a good organizer for this role. It includes:

- Selecting a variety of panelists for each discussion group (use teachers and parents).
- Finding speakers who are knowledgeable and who live nearby for the workshops.
- Coordinating the schedules of speakers and panelists. ■

Shiela Swett is a computer consultant at Rippowam-Cisqua School in Bedford, NY. She is a contributing editor for *Teaching and Computers.*

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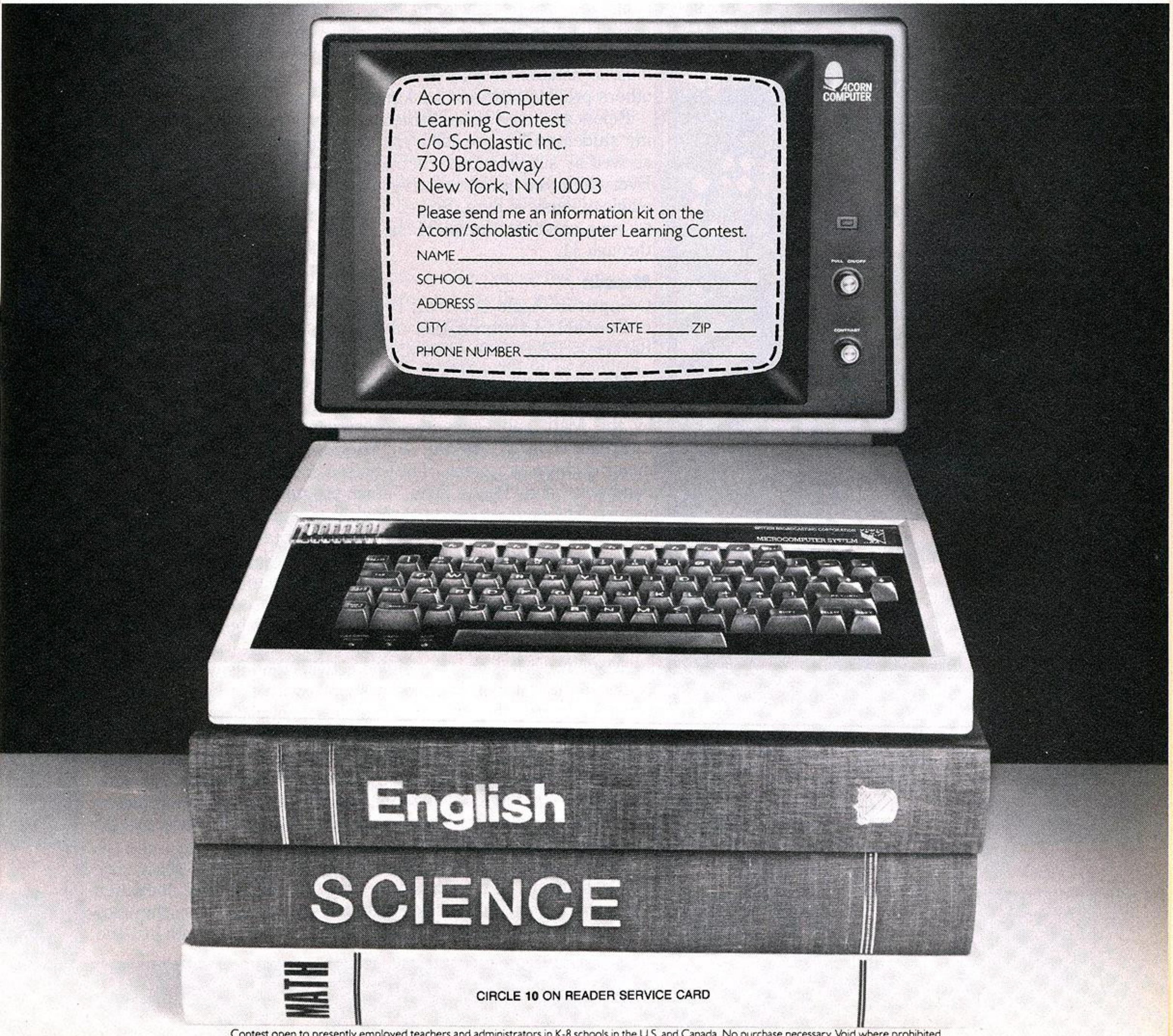

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Sounds of Music

MUSIC ADDS UP TO FUN!

Celebrate Music in Our Schools Week—Electronically!

My class is alive with the sounds of music and yours can be, too! What's that? You say you can't play an instrument or direct a choir? That's all right. You don't have to be a musician to teach music—not if you have a computer. There is a lot of good software available to help you teach students about the subject. Some programs drill students on music theories and concepts; some teach children how to use musical notation to play an instrument or compose a score; still others provide historical background on great musicians.

Below are three sound-sational music programs that I use with my students. I've provided you with summaries of the programs as well as supplementary activities to use with the entire class. Everything you need to teach yourself and your students about the magic of music is here. So get to work! Introduce these programs to your students during Music in Our Schools Week, March 5 through 11.

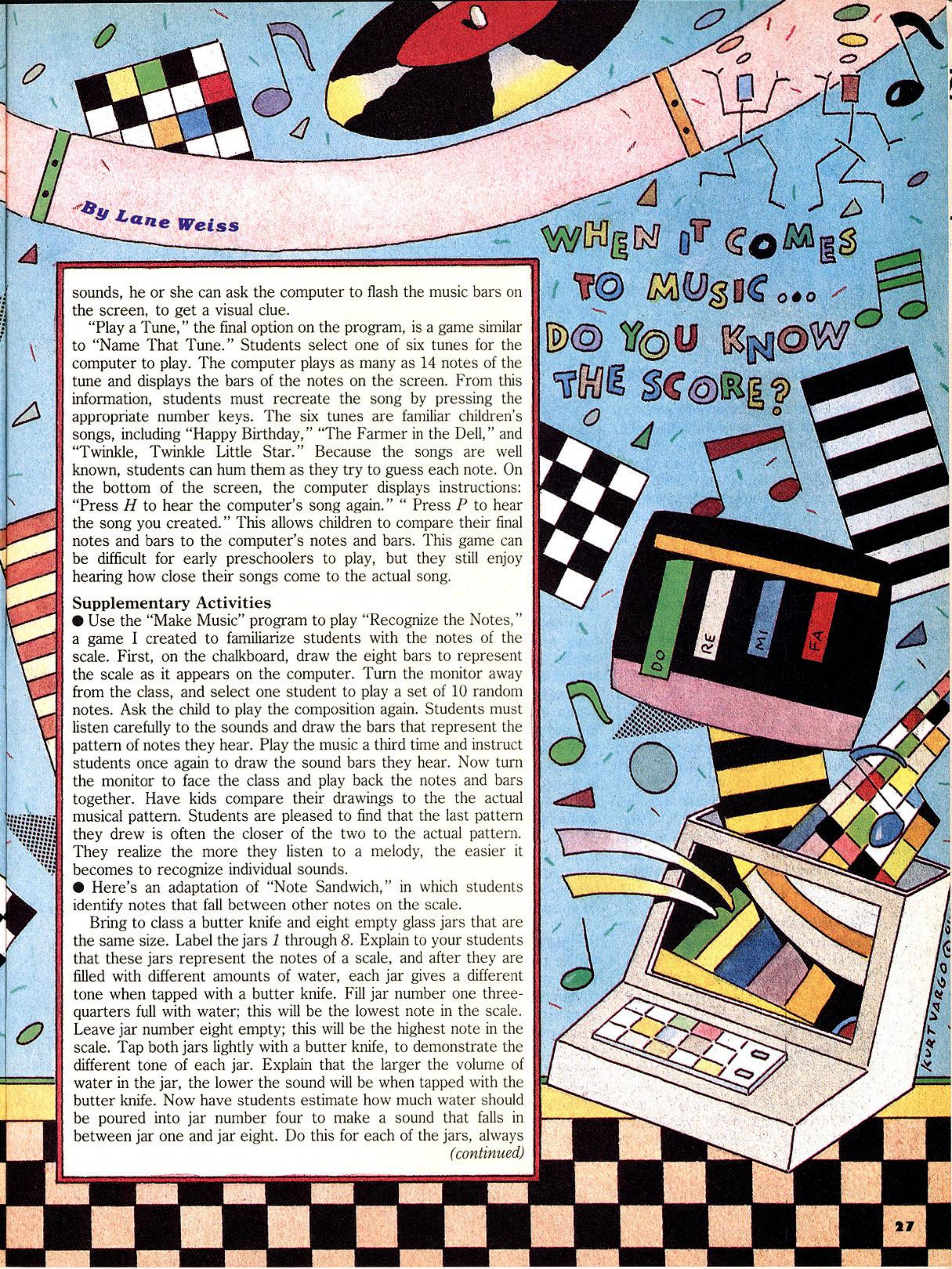
Music

Computer: Apple ○ **Level:** Preschool–Grade 2 ○ **Price:** $34.95 ○ **Contact:** Lawrence Hall of Science, University of California, Berkeley, CA 94720; 415/642-3167.

Music is part of the Micros for Micros series, a collection of software for preschool and primary students that was developed by the Math and Computer Education Project (MCEP) at the Lawrence Hall of Science. In ***Music***, students choose from a menu of three programs. The choices are "Make Music," "Note Sandwich," and "Play a Tune." Each program uses the same basic format. The number keys *1* through *8* on your computer keyboard act as notes on a scale. When students press these keys, the notes are not only heard, but they are displayed as numbered, colored bars that vary in length, according to the pitch of the particular note. For example, the sound of *do* is a long, red bar, numbered one; *sol* is a medium, orange bar, numbered five; and *do prime* is a short, yellow bar, numbered eight.

"Make Music" is an open-ended activity that allows students to compose short tunes or random sounds with the keyboard. The computer stores the notes and can play them back at a fast, slow, or moderate tempo. Students also have a choice of whether to hear just the notes, see only the bars, or hear the notes *and* see the bars of the music they have created. The one limitation with this program is that the computer can play and store only 20 notes at a time. To play more notes, the student must erase the 20 preceding notes and begin again.

The second program in ***Music***, "Note Sandwich," tests children's listening, memory, and estimating skills. The computer plays two notes of the scale, and students try to guess the note that falls between the two. If a student gets stumped with just the



WHEN IT COMES TO MUSIC... DO YOU KNOW THE SCORE?

By Lane Weiss

sounds, he or she can ask the computer to flash the music bars on the screen, to get a visual clue.

"Play a Tune," the final option on the program, is a game similar to "Name That Tune." Students select one of six tunes for the computer to play. The computer plays as many as 14 notes of the tune and displays the bars of the notes on the screen. From this information, students must recreate the song by pressing the appropriate number keys. The six tunes are familiar children's songs, including "Happy Birthday," "The Farmer in the Dell," and "Twinkle, Twinkle Little Star." Because the songs are well known, students can hum them as they try to guess each note. On the bottom of the screen, the computer displays instructions: "Press *H* to hear the computer's song again." " Press *P* to hear the song you created." This allows children to compare their final notes and bars to the computer's notes and bars. This game can be difficult for early preschoolers to play, but they still enjoy hearing how close their songs come to the actual song.

Supplementary Activities

● Use the "Make Music" program to play "Recognize the Notes," a game I created to familiarize students with the notes of the scale. First, on the chalkboard, draw the eight bars to represent the scale as it appears on the computer. Turn the monitor away from the class, and select one student to play a set of 10 random notes. Ask the child to play the composition again. Students must listen carefully to the sounds and draw the bars that represent the pattern of notes they hear. Play the music a third time and instruct students once again to draw the sound bars they hear. Now turn the monitor to face the class and play back the notes and bars together. Have kids compare their drawings to the the actual musical pattern. Students are pleased to find that the last pattern they drew is often the closer of the two to the actual pattern. They realize the more they listen to a melody, the easier it becomes to recognize individual sounds.

● Here's an adaptation of "Note Sandwich," in which students identify notes that fall between other notes on the scale.

Bring to class a butter knife and eight empty glass jars that are the same size. Label the jars *1* through *8*. Explain to your students that these jars represent the notes of a scale, and after they are filled with different amounts of water, each jar gives a different tone when tapped with a butter knife. Fill jar number one three-quarters full with water; this will be the lowest note in the scale. Leave jar number eight empty; this will be the highest note in the scale. Tap both jars lightly with a butter knife, to demonstrate the different tone of each jar. Explain that the larger the volume of water in the jar, the lower the sound will be when tapped with the butter knife. Now have students estimate how much water should be poured into jar number four to make a sound that falls in between jar one and jar eight. Do this for each of the jars, always

(continued)

Sounds of Music

(continued from page 27)

checking the progression of the scale by tapping the jars with the butter knife. If the sequence is not right, the sounds in the jars can always be changed by adding or pouring out water.

Because students are estimating the sounds through trial and error, the experiment may get a bit messy as you pour water from one jar to another to ensure the correct progression of the scale. It will be worth it, though, when students finally hear the water scale they have created.

● If you know how to write music, try this activity with your students. On the chalkboard, write the scale of C, and label each note on the staff. After students have correctly played a song that challenged them in the "Play a Tune" program, pass out music paper and instruct kids to write the notes in the scale of C, using the staff on the chalkboard as a guide. The note bars will remain on the screen, as an extra guide, until the students press the space bar. To test if the students wrote the correct notes, have them exchange papers and play each other's songs.

The Music Machine

Computer: Commodore 64
Level: Grades K–12
Price: Check with local dealer.
Contact: Commodore Computers, 1200 Wilson Drive, West Chester, PA 19380; 215/431-9100.

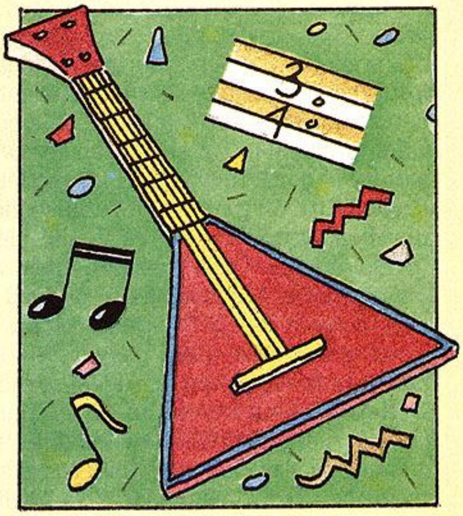
The ***Music Machine*** turns keys *Q* through * on the Commodore keyboard into a musical keyboard. While students play music, the notes are displayed on the monitor, on a staff. The program also allows students to make a printout of their compositions.

The user can control the volume, tone, octave, number of notes that can be heard at one time, and other special effects with various keys on the keyboard. For example, the left cursor key raises the octave, while the down cursor key lowers it. For easy reference, the screen records what octave, voice, waveform, and keyboard mode is in use. Each time the student changes any of these, the screen reflects the change. Students can mix these options, without skipping a beat, simply by pressing the appropriate key. Students can even select one of seven percussion accompaniments.

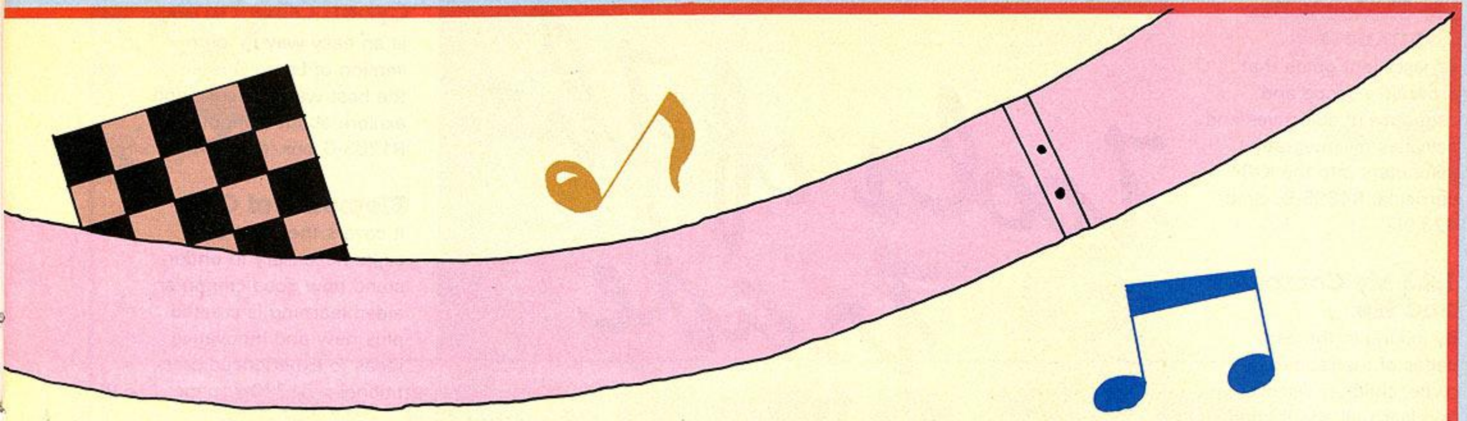
Supplementary Activities

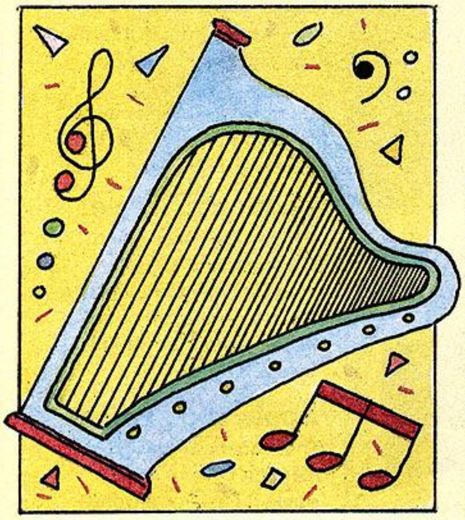
● The percussion option of the software is great for teaching about rhythm. ***Music Machine*** offers seven different percussion rhythms. Each rhythm can play continuously, with or without musical notes. Here's a variation of "Musical Chairs" to help kids recognize changes in rhythm.

Arrange the chairs in the classroom as if you were playing "Musical Chairs"—in a circle, with one chair less than the number of participants. Play one of the rhythm patterns from the ***Music Machine*** and instruct your students to march to the beat. After the kids have marched around the chairs a few times, change the beat. Instruct students that as soon as the beat changes, they should scramble for one of the seats. The child that remains standing must sit out for the rest of the game. Remove one chair, and repeat the game until only one kid is standing, and one is sitting. The one who successfully sits in the remaining chair wins.



● ***Music Machine*** can be used to encourage kids to compose their own music. Have students work in pairs and instruct them to think of a feeling, theme, or idea they would like to write a song about. The tricky part of this activity is that children cannot use words, but only sounds, to express themselves. When the students have completed their composi-





tions, select one student from each pair to play the original score for the class. Let the class guess what feeling or thought the writers are trying to convey.

● Here is another variation of "Name That Tune," but this time using the ***Music Machine***. Your students probably listen to the radio regularly and are very familiar with Top Ten rock and roll tunes. Conduct a class poll to select your class's favorite Top Ten. Write the list on the chalkboard. Randomly choose a song and play a brief segment of it on the ***Music Machine***. Do this for each of the songs. Students are to listen carefully to the notes and write down the name of the song. Did anyone correctly guess all 10? To make the game a little more challenging, play the songs in a slightly different way from the popular version—faster, slower, or in a different octave.

> ***"The percussion option in Music Machine is great for teaching rhythm. It provides seven different kinds."***

MECC Music Programs

Computer: ***Music Theory*** for the Apple; ***Music I, II, III*** for the Atari
Level: Grades 5–12
Price: ***Music Theory*** $49; ***Music I, II, III*** $46
Publisher: MECC, 2520 Broadway Dr., St. Paul, MN 55113; 612/638-0600

For the more advanced music class, I recommend two programs by MECC: ***Music Theory*** for Apple users, and a similar program for Atari users called ***Music I, II, III***. Each offers a wonderful variety of quizzes on subjects including aural intervals, counting, enharmonics, key signatures, and rhythm. The programs use musical tones and graphics to quiz students.

Each set of exercises has levels of difficulty, and students choose the level and the number of questions they would like to try. If a student answers incorrectly, the computer gives the correct answer. The computer also keeps track of the student's score on each set of exercises.

Supplementary Activities

● A fun way to test students on the music facts they learned with ***Music Theory*** and ***Music I, II, III*** is through an adaptation of the game "Mother May I?" I instruct students to stand in a straight line in the the back of the classroom. I randomly call on students to answer music questions. For example, "How many beats does a dotted eighth-note receive?" or "What does *mezzo* mean?" The student may advance one step if the question is answered correctly. If the student answers incorrectly, he or she must move back one step. The first student to reach the finish line, the computer, gets to play his or her favorite music program.

More Music Software

Music Maker for TI 99/4A; grades 5–12; $39.95. Texas Instruments, P.O. Box 225012, M/S 84, Dallas, TX 75265.

Music Teacher for TRS-80; grades 2–12; $19.95. Instant Software Inc., Wayne Green, Inc., Route 101, Peterborough, NH 03458.

Song Writer for Apple, Atari, Commodore 64, and IBM PC; grades K–12; $39.95. Scarborough Systems, Inc., 25 North Broadway, Tarrytown, NY 10591.

Lane Weiss is a music teacher at Kenwood Elementary School in Bend, OR.

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Kids and the VIC.
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Academic Apple.
Written for parents and teachers who are interested in helping youngsters learn with the aid of an Apple computer. R0033-2, paper, $10.95.

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WORD PROCESSING PRIMER

Teach word processing and language arts skills with these five zany activities.

By Thomas E. Boudrot

Remember the old way of writing a report: begin with yellow paper; revise on new yellow paper; revise on white paper; and finish on new white paper? Most kids apply the brakes after they have done a second draft!

With the help of a word processing program, you can create a whole new writing environment in your classroom. This new writing method allows students to delete, insert, and rearrange words instantly, without having to redo the entire paper. Because correcting errors with a word processor is easy and results in a clean draft, students spend less time worrying about mistakes and more time revising sentences, experimenting with style, and concentrating on content.

Before students can take advantage of this revolutionary way of writing, they have to learn how to use a word processing program. The five activities in this primer will teach them the fundamentals of word processing, including accessing disk or cassette files, and deleting, inserting, and replacing text. The activities also will help develop language arts skills, such as identifying homonyms, labeling parts of speech, and writing sentences and letters of correspondence.

The activities require blank disks or cassettes and any word processing program. Any program will work. A few of the more popular word processing programs are *Atari Writer* (Atari, Inc.), *The Bank Street Writer* (Scholastic Inc.), *Scripsit* (Tandy/Radio Shack Corp.), *TI Writer* (Texas Instruments), and *WordPro* (Commodore Business Machines).

If a word processing program is not available to you, try the *Electronic Typewriter* program listed on page 38.

(continued)

Thomas E. Boudrot is a computer coordinator for instruction in the Alief Independent School District in Alief, TX.

MARTIN'S MYSTERY

Activity #1

Word Processing Skill: Accessing data files.

Language Arts Skill: Using letter clues to solve a word puzzle.

Description of Activity: Accessing disk or cassette files is an essential skill in almost all word processing programs. In order to preserve text created on the screen, you must transfer the information to a disk or cassette. Later, you can bring back this information, called a *data file*, to the screen for editing or printing.

In "Martin's Mystery," students access eight data files to retrieve clues. They then use the clues to complete a sentence. The sentence discloses the name of an additional data file, where a creature named Martin is hidden.

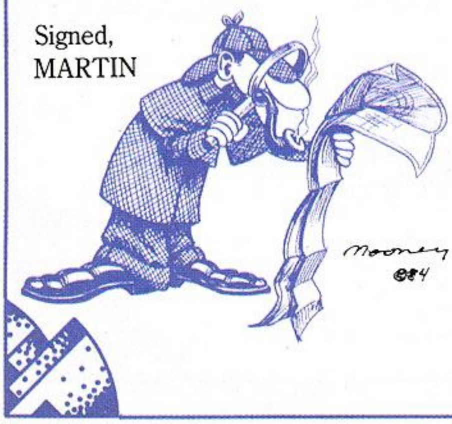
Materials: Ten separate data files (LETTER, CLUES one to eight, and MARTIN); scrap paper for each student; one poster board.

Preparation: Using a word processing program, type Martin's letter (below) on a blank disk or cassette. Save the material under the name LETTER. Then type in clues at right.

Martin's Letter

Dear Friends:
I'm lost in the land of Floppidisco.
Floppidisco's a funny place.
I feel as if I'm in outer space.
If you can find my hidden face,
Then you will set me free!
I'll give you clues to find my site.
Write them down—make sure they're right!
Then think and think with all your might, and you will set me free!

Signed,
MARTIN



DATA FILE: CLUES

Create eight separate data files containing each of the following clues. Save the clues under the names CLUE1, CLUE2, and so on.

CLUE1:
Write the following letters on a piece of paper. They are clues to help you find Martin!
M I D

Now retrieve CLUE2.

CLUE2:
Write the following letters on a piece of paper. They are clues to help you find Martin!
E N I

Retrieve CLUE3.

CLUE3:
Write the following clue on a piece of paper. It will help you find Martin!
THE ? IS AN "A."

Retrieve CLUE4.

CLUE4:
Write the following letters on a piece of paper. They are clues to help you find Martin!
I E A L E

Retrieve CLUE5.

CLUE5:
On a piece of paper, write the sentence below. It's a clue to help you find Martin!
I'-/H-D---/-N/?/F-L-/C--L-D/-A-T--.
F-N-/-E/IF/---/-A-!

Retrieve CLUE6.

CLUE6:
Write the following letters on a piece of paper. They are clues to help you find Martin!
M R I N I D M Y

Retrieve CLUE7.

CLUE7:
Write the following letters on a piece of paper. They are clues to help you find Martin!
O U C N

Retrieve CLUE8.

CLUE8:
THIS IS YOUR LAST CLUE!
Put the letters you have written in the blank spaces in the sentence from CLUE5. Be sure to put them in the order you uncovered them.
CLUE3 is a special clue.
GOOD LUCK!

Using the same disk or cassette, create a ninth file named MARTIN. This file contains Martin's face and a greeting. Type:

```
  !!!
 !!!!!
  0 0
   7

  ---
```

Hi! I'm Martin! Thanks for setting me free . . . .

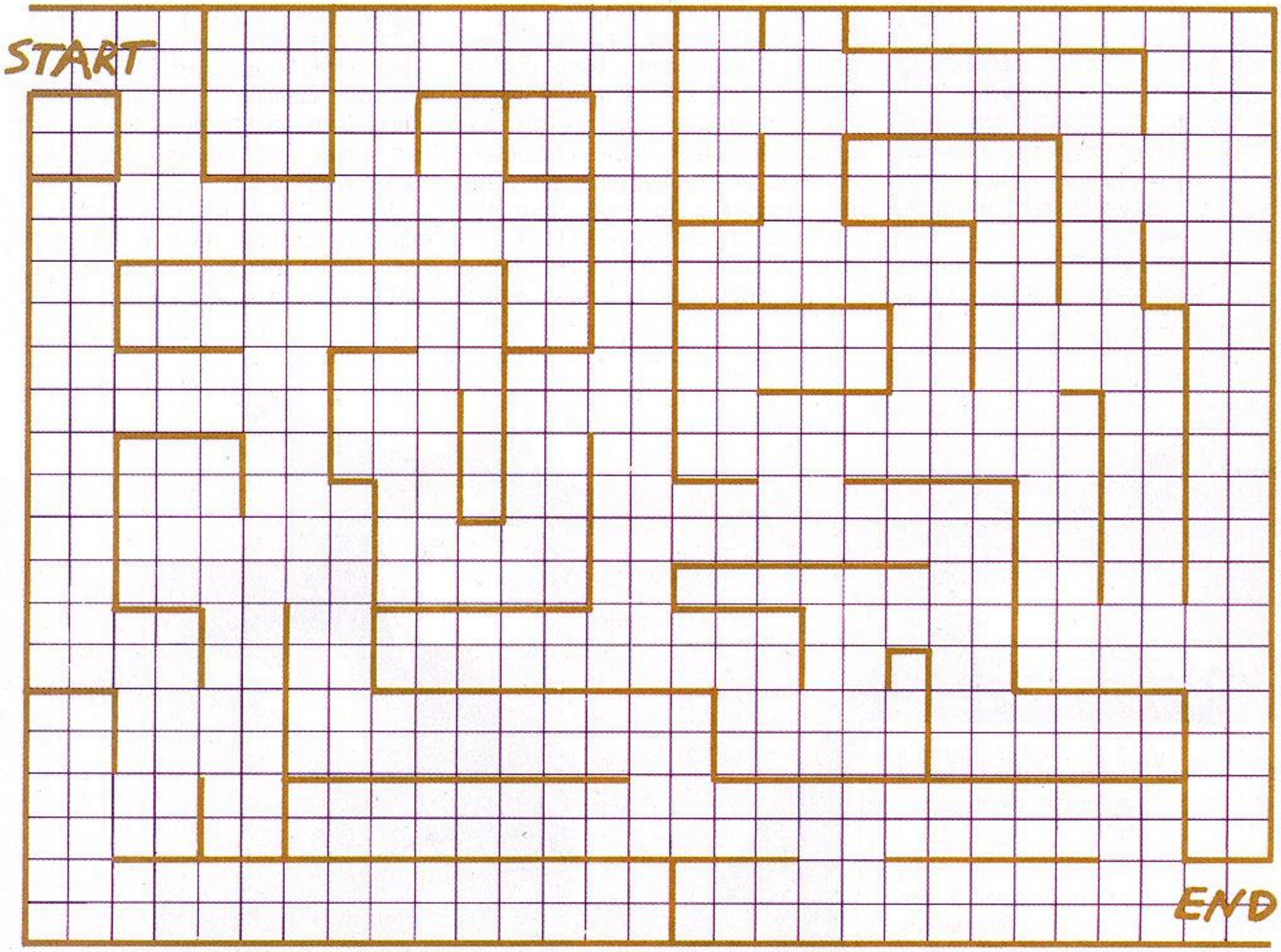
Activity: Demonstrate how to load the word processing program. Then insert the "Martin's Mystery" data file. Retrieve the LETTER file with Martin's letter. Have a student read the poem out loud.

Show students how to save Martin's letter and how to recall it to the screen. Give them time to practice this procedure. Then, explain that there are eight clues on the disk, labeled CLUE1, CLUE2, etc.

Instruct students to retrieve the clues, one at a time, and use them to fill in missing letters in a sentence provided in CLUE5. The sentence tells where to find Martin. Post finders' names on a "Successful Sleuths" poster.

THE AMAZING CURSOR

Activity #2



Make a transparency of "The Amazing Cursor" maze and tape it to your computer screen.

Word Processing Skill: Manipulating the cursor.

Description of Activity: The cursor is a small, blinking square on the screen that indicates where the next typed text will appear. Every word processing program has a method of cursor movement (moving the cursor to a specific location on the screen) that allows the writer to edit or read selected parts of the text.

Some computers have special arrow keys for moving the cursor; others require a combination of keys, often including the CTRL key.

In "The Amazing Cursor" activity, students manipulate the cursor through a maze.

Materials: Maze transparency (above); transparent adhesive tape; AMAZING data file.

Preparation: Using your word processing program and a blank disk or cassette, create a screen full of periods. Every character location should contain a period, from the top of the screen to the bottom. Save this file under the name AMAZING.

Make a transparency of the maze.

Activity: Point out the keys needed for cursor movement on your computer. Move the cursor from top to bottom, and side to side.

Demonstrate how to move the cursor rapidly. (On some programs, you use the REPEAT key; on others, you press two- or three-key combinations; and on still others, you hold down a particular key until the cursor reaches the desired location.)

Load the AMAZING file and tape your maze to the screen. Make sure the cursor is at the START position and the periods are directly under the lines of the maze. Tell kids to move the cursor through the maze to reach the END position.

Have timed races to see who can get through the maze fastest—both forward and backward.

(continued)

HOMONYM HACK-AWAY

Activity #3

Word Processing Skill: Deleting words.
Language Arts Skill: Identifying homonyms.
Description of Activity: On most word processing programs, you can delete letters or words with a single keystroke or a two-keystroke combination.

In "Homonym Hack-Away," students practice deleting incorrect homonyms in a letter.

Materials: WITCH data file.
Preparation: Using your word processing program and a blank disk or cassette, type the "Which Witch is Witch?" file that appears on this page. (Note that some computers and word processing packages allow only uppercase letters.) Save the text under the filename WITCH.
Activity: Demonstrate how to delete on your program by deleting the first incorrect homonym in the "Which Witch is Which?" story. Have students work independently to delete the other incorrect homonyms in the story. Kids should save the finished text under their names or print out copies to hand in.

Provide students with a list of homonyms. Have them create their own stories for their friends to "fix" on the word processor.

Mindy Ball

DATA FILE: WHICH WITCH IS WHICH?

Directions: *Move the cursor to the homonyms in this story. Delete the incorrect one. Only the homonym that fits the story should remain.*

Belinda is a WHICH/WITCH. She's not YOUR/YOU'RE ordinary WITCH/WHICH, however. FOUR/FOR example, Belinda eats only PEARS/PAIRS and READ/RED MEAT/MEET. Her HAIR/HARE is DIED/DYED purple and her skin is very PALE/PAIL.

When Belinda comes to visit, her pet BEAR/BARE, Jonathon, always tags along. THERE/THEY'RE quite a couple! My neighbors do NOT/KNOT believe the SIGHT/SITE—a BARE/BEAR and a WITCH/WHICH walking up to my door?! Surely the SUN/SON must be too strong!

LETTER FROM CAMP

Activity #4

DEAR MOM & DAD.

Word Processing Skill: Inserting and replacing words.

Language Arts Skill: Identifying the parts of speech.

Description of Activity: To insert letters, words, or even whole paragraphs into a word processing text, you must first move the cursor to the desired location, then insert the desired letters. Some programs have a special command for inserting; others allow you simply to type in your text. When you replace a letter or word, you delete existing text and insert new text.

In the "Letter From Camp" activity, students complete a letter by inserting words in place of category names that are written in parentheses. The categories include parts of speech, such as nouns, adjectives, and so on.

Materials: CAMP data file; an activity sheet for each student; insert-replace reference card.

Preparation: Using your word processing program and a blank disk or cassette, type the "Letter from Camp." Save the text under the filename CAMP.

Prepare a reference card outlining the proper procedures for inserting and replacing text. Tape the card to the monitor.

Make one copy of the activity sheet for each student. (See the mini-facsimile on this page.)

Activity: Have students complete the activity sheet first.

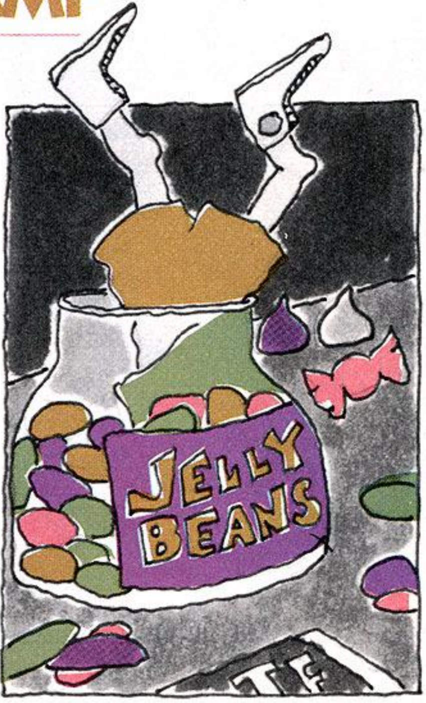
Load the CAMP file and have students insert the words from their activity sheets into the corresponding blanks. Have students read their stories aloud.

Student Worksheet: Letter from Camp

Name __________________________

Directions: Select words that fit each category below. Write one word on each line. Then, using the word processor, complete the story (filename CAMP) with the words you have written.

1. person
2. place
3. animal
4. verb (past tense)
5. person
6. verb
7. number
8. adjective
9. person
10. adjective
11. date
12. vegetable
13. vegetable
14. date
15. place
16. favorite candy
17. son/daughter (Pick one.)



Data File: Letter From Camp

Directions: Replace the words in parentheses with the corresponding words on your worksheet.

Dear *(person)*,

I finally made it to *(place)*, and boy is it interesting. When we arrived, a huge *(animal)* charged toward our bus. We nearly *(verb, past tense)*!

On the second day, *(person)* went for a *(verb)* in the woods. After *(number)* hours, we became worried and formed a search party. By midnight, we became *(adjective)* and returned to the cabin. And—I'll bet you've guessed—*(person)* was asleep in bed!

The food is *(adjective)*. The only thing we ate on *(date)* was *(vegetable)*. The camp director said that it was good for us. You know how much I like *(vegetable)*.

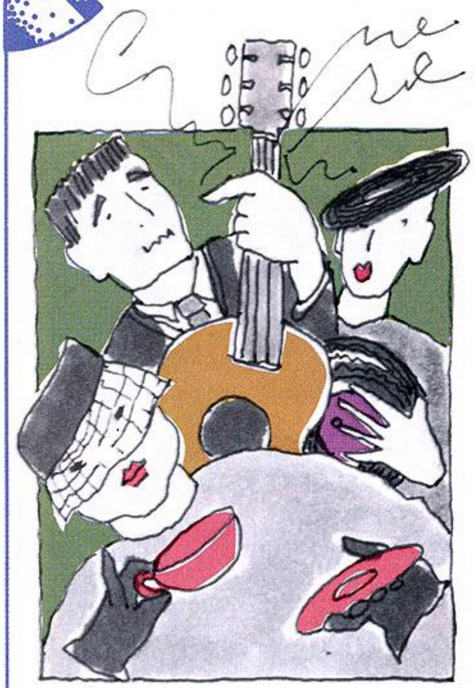
We will be coming home on *(date)*. Please pick me up at *(place)*. Oh, by the way, don't forget to bring along some *(favorite candy)*!

Your *(son/daughter)*,

(continued)

UNCLE MORRIS'S WILL

Activity #5



Word Processing Skill: Inserting, deleting, and replacing words.
Language Arts Skill: Composing a letter.
Description of Activity: To keep students' minds well-greased, they'll need a word processing "tune-up." "Uncle Morris's Will" is an independent activity to give students practice in inserting, deleting, replacing, and composing on a word processing system.

Students load a data file with Uncle Morris's will on it. Then, following task cards, they add, delete, and change items in the will. The final task card instructs students to compose a letter to Max, Uncle Morris's butler.
Materials: MORRIS data file; four task cards.
Preparation: Using a word processing program and a blank disk or cassette, type "Uncle Morris's Will." (See box on this page.) Save the text under MORRIS.

Cut out and laminate the student task cards on the opposite page.
Activity: Instruct students to load the MORRIS file into the computer and complete the cards in order.

They should save the final versions of the will and their letters to Max under their own names or initials.

Data File: Uncle Morris's Will

I, Morris Q. Moneybucks, being of rich mind and body, leave my earthly possessions to my three children: Doris, Horace, and Chloris.

To Doris: three pink china teacups, one moose head, one dozen candles, contents of the main library, seven umbrellas, and my brass doorknob.

To Horace: one Rolls Royce (tires not included), one guitar (stringless), two pink china teacups (cracked), carving set (dull), and my old toothbrush.

To Chloris: twenty assorted sewing machines, five phonograph records, one phonograph, one pair of tennis shoes, and my teddy bear.

If anyone fails to collect the loot within 30 days of my departure, it will be given to my faithful butler, Max.

Signed,

Morris Q. Moneybucks

Morris Q. Moneybucks

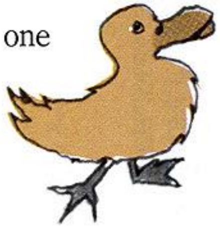
Cut out and laminate.

UNCLE MORRIS'S WILL,

TASK CARD #1

Toys in the Attic

Uncle Morris forgot to check the attic before he wrote his will. Add these items:
Doris: one stuffed duck, two pairs of slippers, nine baseball bats
Horace: two antique clocks (slow), one window shade (torn)
Chloris: three bedposts



UNCLE MORRIS'S WILL,

TASK CARD #2

Fix It Quickly!

Before Uncle Morris passed away, he fixed all his broken items.

Correct the will by deleting all words in parentheses.

While you're at it, you might as well get rid of Doris's moose head and Horace's old toothbrush.

UNCLE MORRIS'S WILL,

TASK CARD #3

A Change of Will

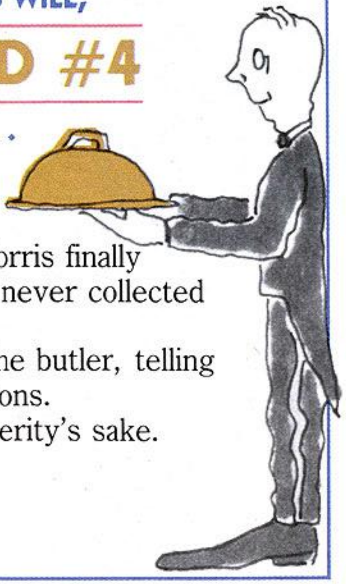
After much thinking, Uncle Morris has decided to make a few changes in the original will.

It's up to you to put them in the will.
Doris: Change "seven umbrellas" to "one waffle iron."
Horace: Change "one guitar" to "eight seashells by the seashore."
Chloris: Change "my teddy bear" to "my hot pink socks."

UNCLE MORRIS'S WILL,

TASK CARD #4

Dear Max . . .



It had to happen. Uncle Morris finally departed this world. Doris never collected her items.

Write a letter to Max, the butler, telling him to pick up his possessions.

Save the letter for Posterity's sake. (She's Max's daughter.)

Mindy Ball

(continued)

PRIMER

ELECTRONIC TYPEWRITER

A Simple Word Processing Program

By Henry Gaylord and Michael Milone

Electronic Typewriter is a very basic word processing program. An "on-screen" menu shows students how to compose, delete, replace, save, and retrieve up to one page of text. Note that the program has limited insertion capabilites.

For an Atari, Radio Shack, or Commodore version of this program, send a self-addressed, stamped envelope to *Electronic Typewriter* Modifications, *Teaching and Computers*, 730 Broadway, New York, NY 10003. Remember to specify which machine you want the modifications for.

```
1  DIM A(20),L$(20)
10 D$ =  CHR$ (4):V = 1:H = 1:LL = 0
20  FOR I = 1 TO 20: READ A(I): NEXT I
25  HOME
30  VTAB 20: HTAB 1: CALL  - 958: FOR I = 1 TO 40: PRINT "-";: NEXT I
40  PRINT "CTRL-P=PRINT  CTRL-E=END  ! MOVE"
50  PRINT "CTRL-C=CLEAR              ! WITH    T"
60  PRINT "CTRL-S=SAVE   CTRL-L=LOAD ! CTRL- F + G"
65  PRINT "THE ARROW KEYS DELETE     !         V";
70  VTAB V: HTAB H
80  GET A$:A =  ASC (A$): IF A > 31 THEN 200
90  IF A = 20 THEN  CALL  - 998
100  IF A = 6 THEN  CALL  - 1008: GOTO 80
110  IF A = 7 THEN  CALL  - 1036
120  IF A = 8 THEN  CALL  - 1008: PRINT  CHR$ (32);A$;
125  IF A = 22 AND  PEEK (37) < 18 THEN  VTAB  PEEK (37) + 2
130  IF A = 21 THEN  CALL  - 1036: PRINT  CHR$ (32);: CALL  - 1008:GO TO 80
140  IF A = 12 THEN 2000
150  IF A = 16 THEN 300
155  IF A = 19 THEN 1000
160  IF A = 3 THEN 3000
170  IF A = 5 THEN  HOME : END
180  IF A = 13 THEN 200
190  GOTO 80
200  IF  PEEK (36) > 38 THEN 500
205  PRINT A$;
210 V =  PEEK (37) + 1:H =  PEEK (36) + 1
220  IF  PEEK (37) > 18 THEN  PRINT  CHR$ (7);: GOTO 250
230  IF  PEEK (37) >LL THEN LL =  PEEK (37)
235  IF  PEEK (36) > 39 AND A$ < >  CHR$ (32) AND  PEEK (37) = LL THEN 500
240  GOTO 80
250  VTAB 21: HTAB 1: CALL  - 958: PRINT "YOU HAVE FILLED THE BOTTOM LINE.
     ": PRINT "PLEASE SAVE, PRINT OUT, OR MOVE UP."
260  PRINT : HTAB 4: PRINT "PRESS THE SPACE BAR TO CONTINUE.";: GET A$
270 V = 19:H = 40: GOTO 30
300  VTAB 21: HTAB 1: CALL  - 958: PRINT : HTAB 8: PRINT "PLEASE WAIT ABOUT
     10 SECONDS."
310  FOR L = 1 TO LL + 1:L$(L) = ""
320  FOR C = 0 TO 39
330 L$(L) = L$(L) +  CHR$ ( PEEK (A(L) + C))
340  NEXT C,L
350  PR# 1
360  FOR I = 1 TO LL + 1: PRINT L$(I): NEXT I
370  PR# 0
380  HOME : FOR I = 1 TO 19: PRINT L$(I);: NEXT I
390  GOTO 30
430  DATA  1024,1152,1280,1408,1536
440  DATA  1664,1792,1920,1064,1192
450  DATA 1320,1448,1576,1704,1832
460  DATA  1960,1104,1232,1360,1488
500  IF A$ =  CHR$ (32) OR  PEEK (37)< >  LL OR  PEEK (37) > 17 THEN 205
505 EL$ = "":K = A( PEEK (37) + 1): PRINT A$;
510  FOR I = 39 TO 1 STEP  - 1
520 S =  PEEK (K + I): IF S = 160 THEN 550
530 EL$ =  CHR$ (S) + EL$
540  NEXT I: GOTO 80
550  VTAB LL + 1: HTAB 41 -  LEN (EL$): PRINT  SPC(  LEN (EL$)): HTAB 1: PRINT
     EL$;: GOTO 80
1000  VTAB 21: HTAB 1: CALL  - 958: PRINT "SAVE ON DISK - UNDER WHAT NAME
     OR TITLE"
1010  INPUT "WILL THIS BE RECORDED? ";N$
1020  IF N$ = "" THEN 30
1030  VTAB 24: PRINT "IS THE NAME OK (Y/N)?";: GET A$
1040  IF A$ = "N" THEN 1000
1050  IF A$ < > "Y" THEN 1030
1055  VTAB 21: PRINT
1060  POKE 2000,LL: POKE 2001,V: POKE 2002,H
1070  PRINT D$;"BSAVE ";N$;",A$400,L$3F8"
1080  GOTO 30
2000  VTAB 21: HTAB 1: CALL  - 958: PRINT "LOAD FROM DISK - WHAT IS THE
      NAME OF"
2010  INPUT "THE RECORDED TYPING? ";N$`
2020  IF N$ = "" THEN 30
2030  VTAB 24: PRINT "IS THE NAME OK (Y/N)?";: GET A$
2040  IF A$ = "N" THEN 2000
2050  IF A$ < >  "Y" THEN 2030
2055  VTAB 21: PRINT
2060  PRINT D$;"BLOAD ";N$;",A$400
2070 LL =  PEEK (2000):V =  PEEK (2001):H =  PEEK (2002)
2080  GOTO 30
3000 V =  PEEK (37) + 1:H =  PEEK (36) + 1
3010  VTAB 21: HTAB 1: CALL  - 958: PRINT : PRINT "ARE YOU SURE YOU WANT TO
      CLEAR THE": PRINT "SCREEN (Y/N)? ";: GET A$: PRINT A$;
3020  IF A$ < > "Y" THEN 30
3030 V = 1:H = 1: GOTO 25
```

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CIRCLE 11 ON READER SERVICE CARD

PULL OUT →

ELECTRONIC CALENDAR—TEACHER'S GUIDE

The Computer Chip

By Lorraine Hopping

The March calendar explores the computer chip. This teacher's guide provides answers and information for activities on the calendar.

March 1, 2, 9:

How Chips Work

Someone types commands into a computer keyboard. These keyboard strokes trigger a series of electrical signals that travel through tiny pathways, or *circuits*, on chips. A circuit contains switches, or *logic gates*, that react to this flow of electricity. When electricity passes through a logic gate, the switches turn on; when it stops, the switches turn off.

Every series of on-off switches is converted into ones and zeros, known as a *binary code*. "On" switches are ones and "off" switches are zeros. The zeros and ones, in turn, translate into numbers, letters, and characters that the computer can display for humans. Here's an example of a binary alphabet:

A	0100 0001	N	0100 1110
B	0100 0010	O	0100 1111
C	0100 0011	P	0101 0000
D	0100 0100	Q	0101 0001
E	0100 0101	R	0101 0010
F	0100 0110	S	0101 0011
G	0100 0111	T	0101 0100
H	0100 1000	U	0101 0101
I	0100 1001	V	0101 0110
J	0100 1010	W	0101 0111
K	0100 1011	X	0101 1000
L	0100 1100	Y	0101 1001
M	0100 1101	Z	0101 1010

To help students understand how a chip works, play "Binary Blitz." Make eight red flags and eight green flags by taping a red or green paper triangle to the ends of 16 separate rulers.

Eight students are "logic gates." Issue a red and a green flag to each. One person is "electricity." The logic gates line up in front of the class. Whisper a computer term to them. The logic gates first decide how to write the word in binary code. They then spell the word in binary, letter by letter, using the flags.

To do this, "electricity" must walk past the first logic gate, who raises a red flag for zero or a green flag for one; and then past the second gate, who displays a red or green flag, and so on, until the gates are collectively showing the binary code for the first letter. The other students in the class write the numbers down on scrap paper, and convert each series of numbers into a letter.

"Electricity" walks past the eight gates, once for each letter, until someone guesses the word. Students then switch roles and start with a new word.

March 14:

Types of Chips

ROM chips, RAM chips, and the CPU (Central Processing Unit), are all types of computer chips.

March 23:

Making Chips

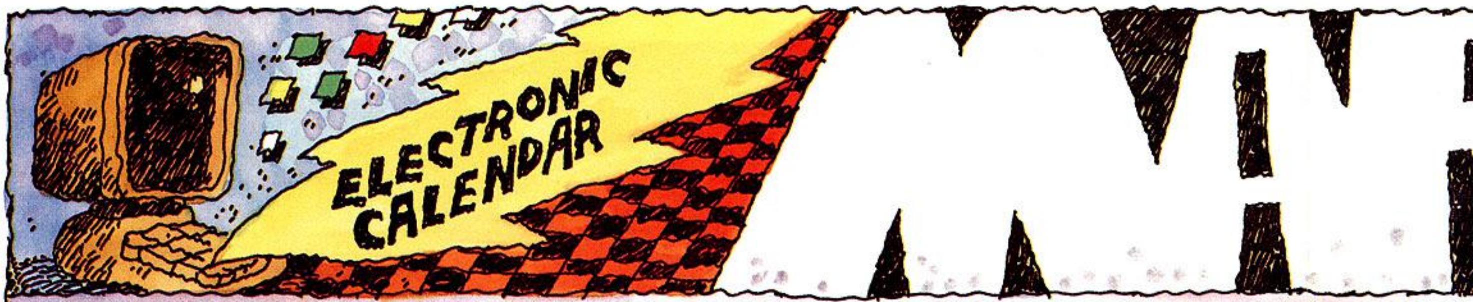
Engineers design a chip by drawing a large blueprint of its circuits. Technicians then reduce the design, through photography, to minuscule size. Placing the blueprints above a silicon wafer, they bake chemicals through lines drawn on the blueprint and onto the silicon. These baked chemicals form electronic pathways.

March 27:

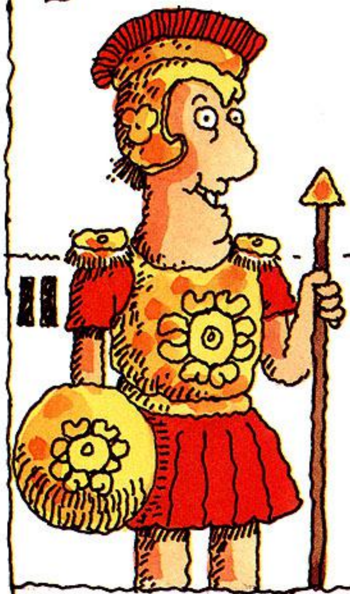
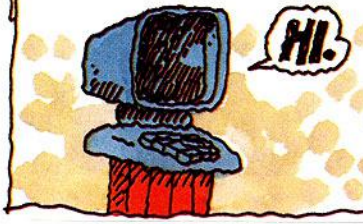
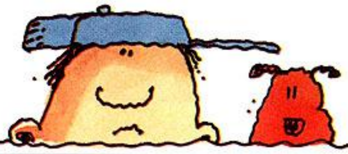
Before Chips

Before chips, computers used vacuum tubes, transistors, and large-scale integrated circuits. ■

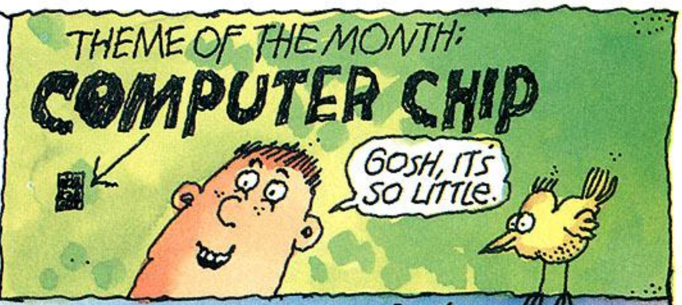
Lorraine Hopping is assistant editor for *Teaching and Computers*.



IT'S TOO COLD TO PLAY OUTSIDE.
LET'S GO INSIDE AND MESS WITH YOUR COMPUTER.
CAN I COME, TOO

Sunday	Monday	Tuesday	Wednesda
4 When in ROM, do as the ROMans. 	**5** **William Oughtred's Birthday (1575)** Oughtred invented the slide rule, a special ruler used to calculate math problems.	**6** **Fast Fact** Microprocessors smaller than your thumbnail can run a digital watch, control appliances in a home, or relay thousands of telephone calls at once!	**7** **Ash Wednesday**
11	**12** **Try This!** The closer circuits are built, the faster a computer works. Stack paper in corners of the room. See how fast you can collect paper from each stack. Put stacks side by side and see how long it takes.	**13** **Quick Quiz** What do CPU, ROM, and RAM have in common, besides initials?	**14**
18	**19**	**20** **Fast Fact** A blueprint (drawing) of circuits for a single chip can take up an entire room. But the finished chip can be smaller than a dime!	**21** **First Day of Spri**
25 	**26** **Future Fact** In the future, lasers, instead of electricity, will relay information in circuits. Laser circuits will be even smaller and faster than today's electronic circuits.	**27** **Quick Quiz** Name three devices that computers of the past used to transmit information. 	**28**

RCH



Wednesday | Thursday | Friday | Saturday

E
TH
ER.
CAN I COME, TOO?

1 **Word Day: Chip**
Chips are made of silicon, a hard substance found in sand and lava. Thousands of tiny parts on the surface of chips store and relay information in computers.

2 **Word Day: Microprocessor**
A ***microprocessor*** is a special chip that can perform jobs, using information it is given. It can do this because it has a processing unit. A microprocessor operates your microcomputer.

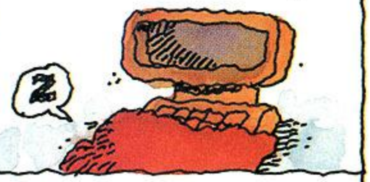
3

Ash Wednesday

8 **Howard Aiken's Birthday (1900)**
In 1944, Aiken built a computer for doing math. Called the Mark I, it had 500 miles of wires and 78 calculators!

9 **Word Day: Circuits**
Circuits are tiny pathways on a chip. They carry electric signals to and from the CPU (Central Processing Unit).

10 **Joke Day**
Q: Why couldn't the CPU stay awake?
A: Because the key "board" it to sleep.



15 **Future Fact**
If circuits are *too* close, they heat up and damage the chip. To make circuits closer and faster without overheating, scientists are working on a computer that can operate at 460 degrees below zero.

16

17 **St. Patrick's Day**

First Day of Spring

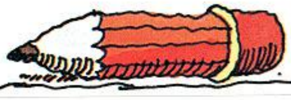
22

23 **Try This!**
Write your name as small as you can. Fold a piece of paper in half six times. How small can you go? Chips are even smaller! How do you think people make chips so small?

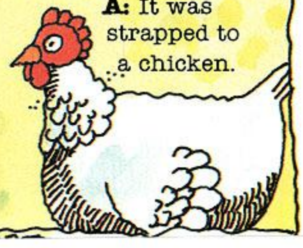
24 **Joke Day**
Q: What do you get when you cross Dracula with a computer?
A: A vampire that "bytes" or a computer that "Counts."

29

30 **Try This!**
Use reference books to draw a computer chip that has circuits and switches.



31 **Joke Day**
Q: Why did the computer cross the road?
A: It was strapped to a chicken.



The Amazing Microchip

It's true that great things come in small packages! This microchip is tiny enough to fit through the eye of a needle, but it can do all of the computer's "brain work." The microchip is made of silicon, a compound found in sand. It has thousands of message pathways on its flat surface. The pathways carry electrical signals that store, retrieve, and process information for the computer. Some computers have one microchip to do their work. Other computers contain many microchips.

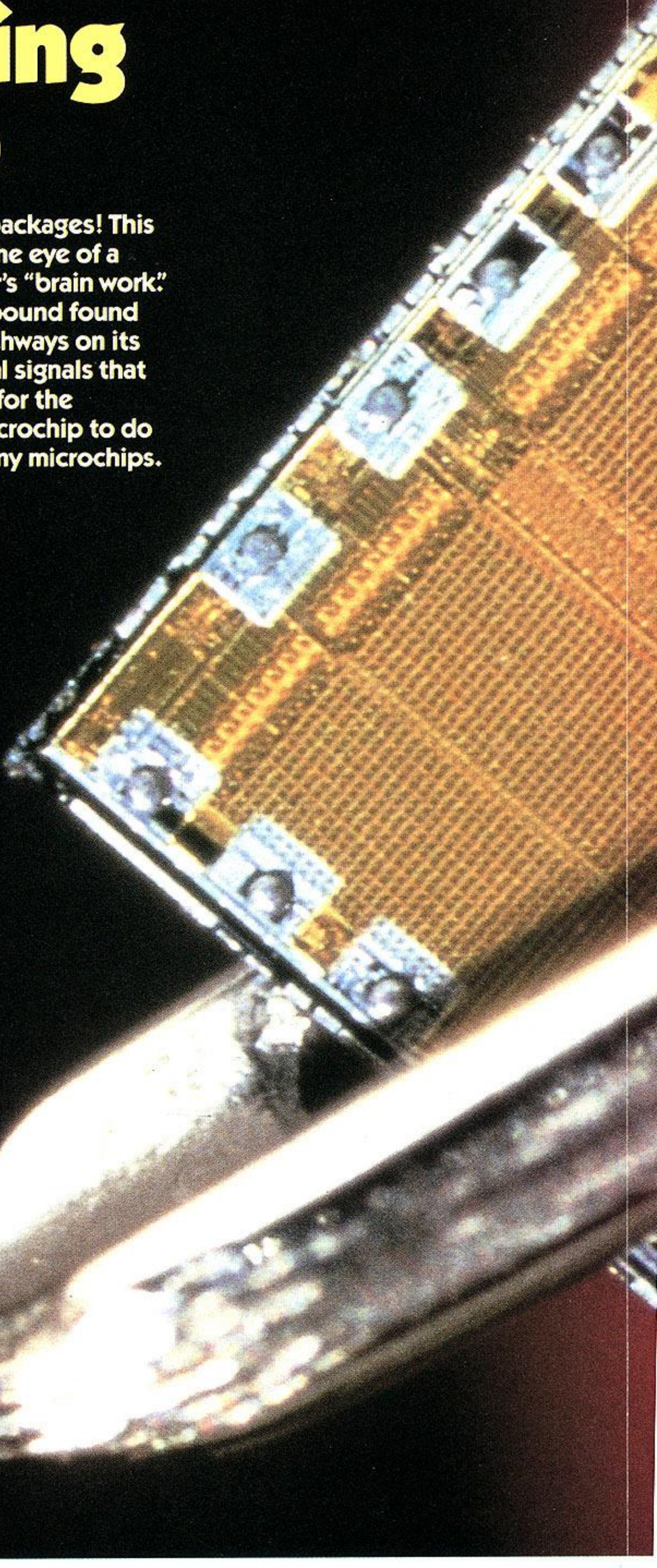
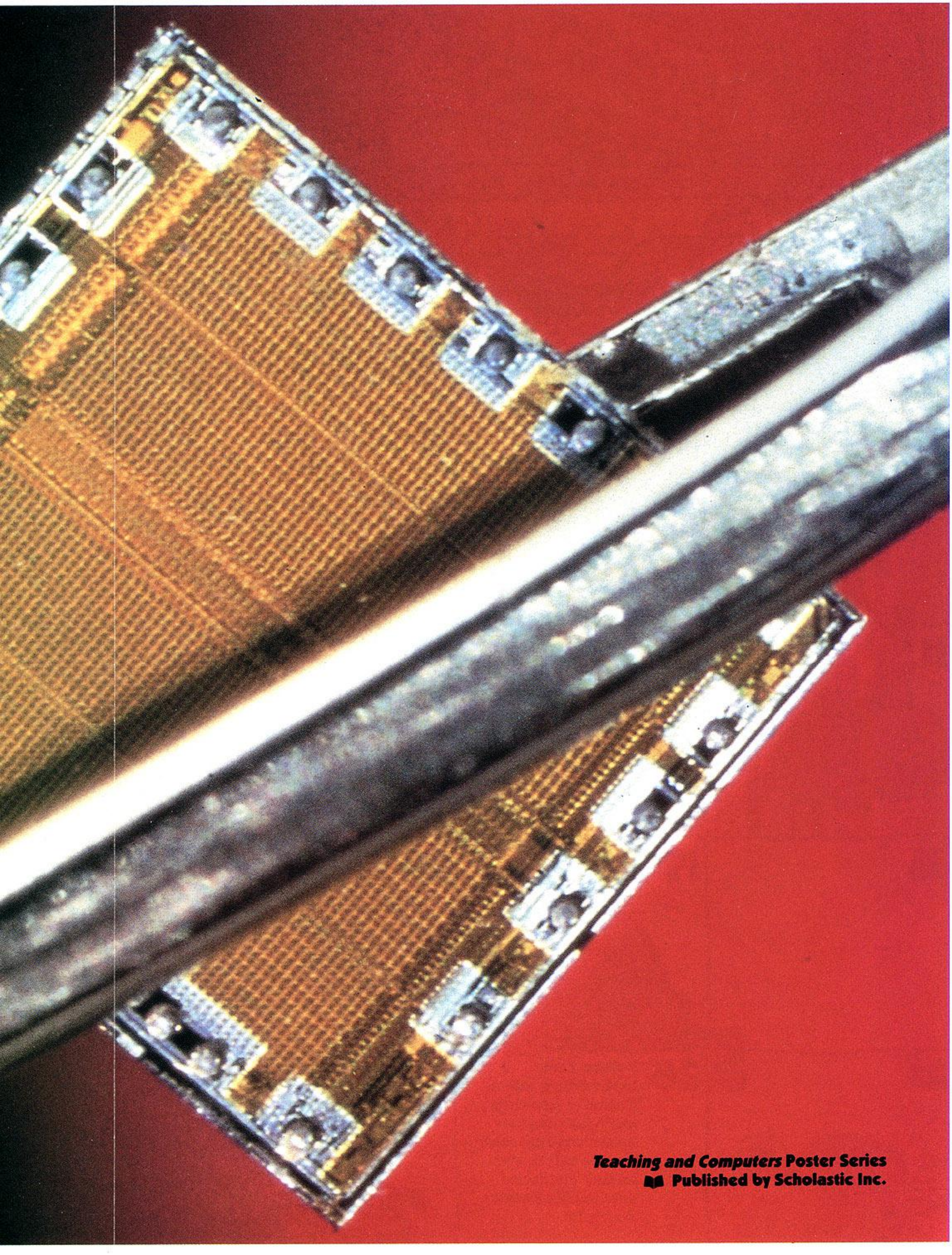


PHOTO COURTESY OF IBM.



Teaching and Computers Poster Series
Published by Scholastic Inc.

KID'S PAGE

Look What I Can Do!

I can make a fleet of rockets blast off! Can you?

Here's my *Rocket* program listing:

```
1  REM  FLEET OF ROCKETS
10  PRINT "   *"
20  PRINT "  * *"
30  PRINT " *   *"
40  PRINT " * U *"
50  PRINT " * S *"
60  PRINT " * A *"
70  PRINT " *   *"
80  PRINT " *   *"
90  PRINT "*     *"
100  PRINT " *****"
110  PRINT " | | | "
120  PRINT "   |   "
130  PRINT : PRINT : PRINT
140  GOTO 10
```

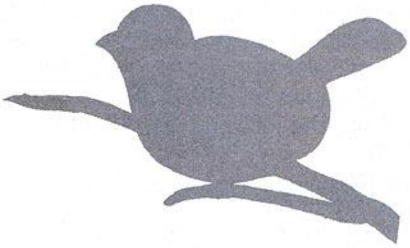
Enter the program listing exactly as it appears. Type RUN and watch the rockets zoom into outer space!

To stop them from taking off, press CTRL and C at the same time, or press the BREAK key.

- Make a huge rocket that fills the whole screen.
- Can you make the rockets use "reverse thrust" to slow down? Add this line: 125 FOR X = 1 TO 100: NEXT X.
- Add flying saucers, planes, and birds to make a night scene.
- Here's a slick trick that makes a fleet of 50 rockets blast off:

```
5 FOR R = 1 TO 50
140 NEXT R
150 END
```

Lorraine Hopping
Northville, MI



Joke File

Q: Why did the computer cross the road?
A: Because the chicken programmed it to.

Thomas Baker
Pittsburgh, PA

Q: What's the cure for Logo Fever?
A: Turtle soup.

Marjorie Duby
Randolph, MA

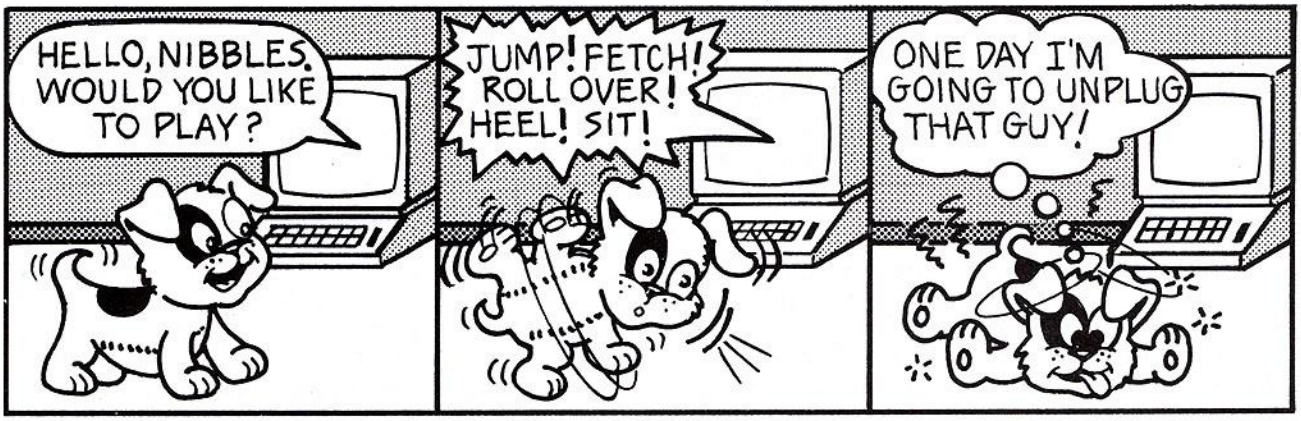
Q: How did the program escape the mad programmer?
A: It ran.

Twilla Hanks
Sandy, OR

Calling All Kids!

Send your computer tricks and jokes to Kid's Page, *Teaching and Computers,* 730 Broadway, New York, NY 10003. We might publish them in the Kid's Page, so remember to include your name, grade, and address. ■

Nibbles


HELLO, NIBBLES. WOULD YOU LIKE TO PLAY?
JUMP! FETCH! ROLL OVER! HEEL! SIT!
ONE DAY I'M GOING TO UNPLUG THAT GUY!

Robert Dale

Teacher's Notes: The program listing is for all computers except TI. See chart, page 76, for TI modifications

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LEARNING CENTER

Adding Input

By Sandra Markle

This month's column introduces the INPUT command through a group lesson and four student task cards.

Setting Up

Add this term to your "Command Post:"

INPUT: a word in a computer program that tells the computer to accept data that follows it. INPUT also assigns variables to the data.

A Group Lesson

Last month, students learned that a variable (a letter assigned to a named location in the computer's memory) can be used to store information for use in a later part of a program. They used variables for programs like this:

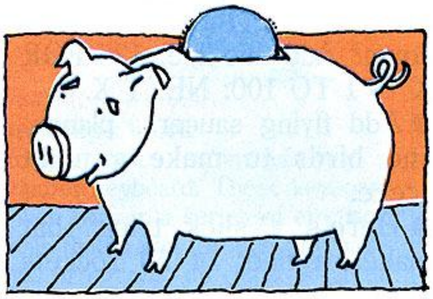
```
NEW
10 X = 10
20 Z = 5
30 PRINT “X + Z”
40 PRINT X + Z
50 END
```

In this program, lines 10 and 20 tell the computer that the value of *X* (variable) is 10 and the value of *Z* (variable) is 5.

Tell students that they can also assign values to variables by using the INPUT command. Show students why the INPUT command is useful by presenting two versions of a program, one without the INPUT command and one with it. The following program uses simple variables to figure out the number of weeks needed to save enough money for a video game cartridge:

```
NEW
10 S = 5
20 A = 2
30 C = 45
40 W = (C - S)/A
50 PRINT W
60 END
```

Explain that *S* stands for dollars saved; *A*, for the weekly allowance; *C*, for the cost of the cartridge; and *W*, for the number of weeks needed to collect enough money to make the purchase.



Program your assets with INPUT.

Have a student type the program into the computer and RUN it. Then ask, "How would you make the program work if your allowance is increased to $3 a week?" or "What if the price of the cartridge drops to $40?" *(You would have to rewrite lines 20 and 30 to change the values of* A *and* C.*)*

Then tell students that you can write a program that lets people enter any values for the variables, without rewriting the program!

Write the following on the board:

```
NEW
10 INPUT “WHAT HAVE YOU SAVED”;S
20 INPUT “WHAT IS YOUR WEEKLY ALLOWANCE”;A
30 INPUT “WHAT IS THE COST OF THE ITEM YOU WANT TO BUY”;C
40 W = (C - S)/A
50 PRINT “YOU WILL NEED TO SAVE FOR ”;W;“ WEEKS.”
60 END
```

Tell students that semicolons are used to connect several tasks for one command (line 50). Also explain that the INPUT command can sometimes take the place of a PRINT command (lines 10, 20, 30). The computer prints the words in quotes following the INPUT command. (This is not true for Atari and TI computers. PRINT and INPUT must be used as separate commands.) Have a student enter the program into a computer.

RUN the program and have a student enter an amount under $10 for the savings. Ask students at what variable address this amount is stored (*S*). Explain that a variable name always goes with an INPUT command so that the computer has an address for storing and retrieving information.

RUN the program through a few times so that students can enter different values and record the results.

Demonstrate that you can also use PRINT commands to display sentences before an INPUT command. Show this by rewriting the first two lines of the program to read:

```
10 PRINT “WHAT HAVE YOU SAVED?”
15 INPUT S
```

RUN the program to check the results. Ask students which command they think is more efficient. *(INPUT; using the PRINT command takes up an extra line each time.)*

Using the Task Cards

Cut out and laminate the four task cards, and file them in a box near your computer. Here's a summary of the cards' objectives:

Task Card #21: Students discover what happens when they INPUT the wrong data. *Answer: In all cases, students will receive an error message.*

Task Card #22: Students input data into a program. They will need a measuring tape. *Answers will vary.*

Task Card #23: Students use the INPUT command to assign values to variables. *Answers will vary.*

Task Card #24: Students practice the INPUT command, using several variables. They will need road maps of the eastern United States and a pair of dice. *Answers will vary.* ■

Editor's Note: Programs on the task cards work for IBM, Radio Shack, and, Commodore computers. For Apple, Atari, and TI conversions, see chart, page 76.

Mindy Ball

LEARNING CENTER TASK CARD

21

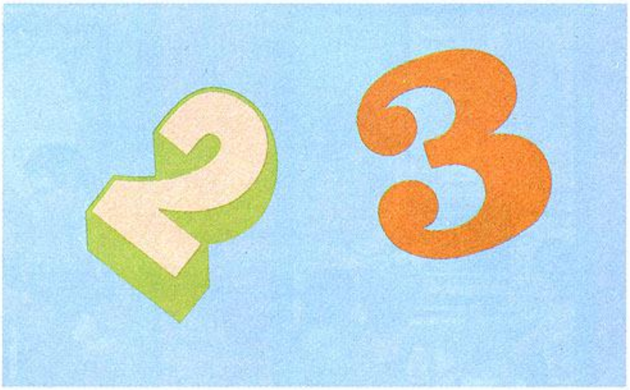
INPUT EXPERIMENT

Type in the following program:

```
NEW
10 PRINT "ENTER ANY TWO NUMBERS."
20 INPUT A,B
30 C = A + B
40 PRINT "A + B = ";C
50 END
```

Type RUN and enter two numbers to see how the program works. Type RUN again, but this time only enter one number. What happens? (Remember: if you get stuck, press CTRL and C at the same time, or press the BREAK key.)

What happens if you enter more than two numbers, or if you enter a word instead of a number? RUN the program two more times to find out.



LEARNING CENTER TASK CARD

22

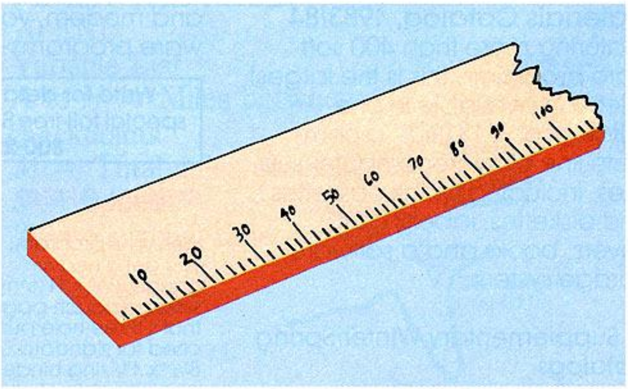
JUST AVERAGE

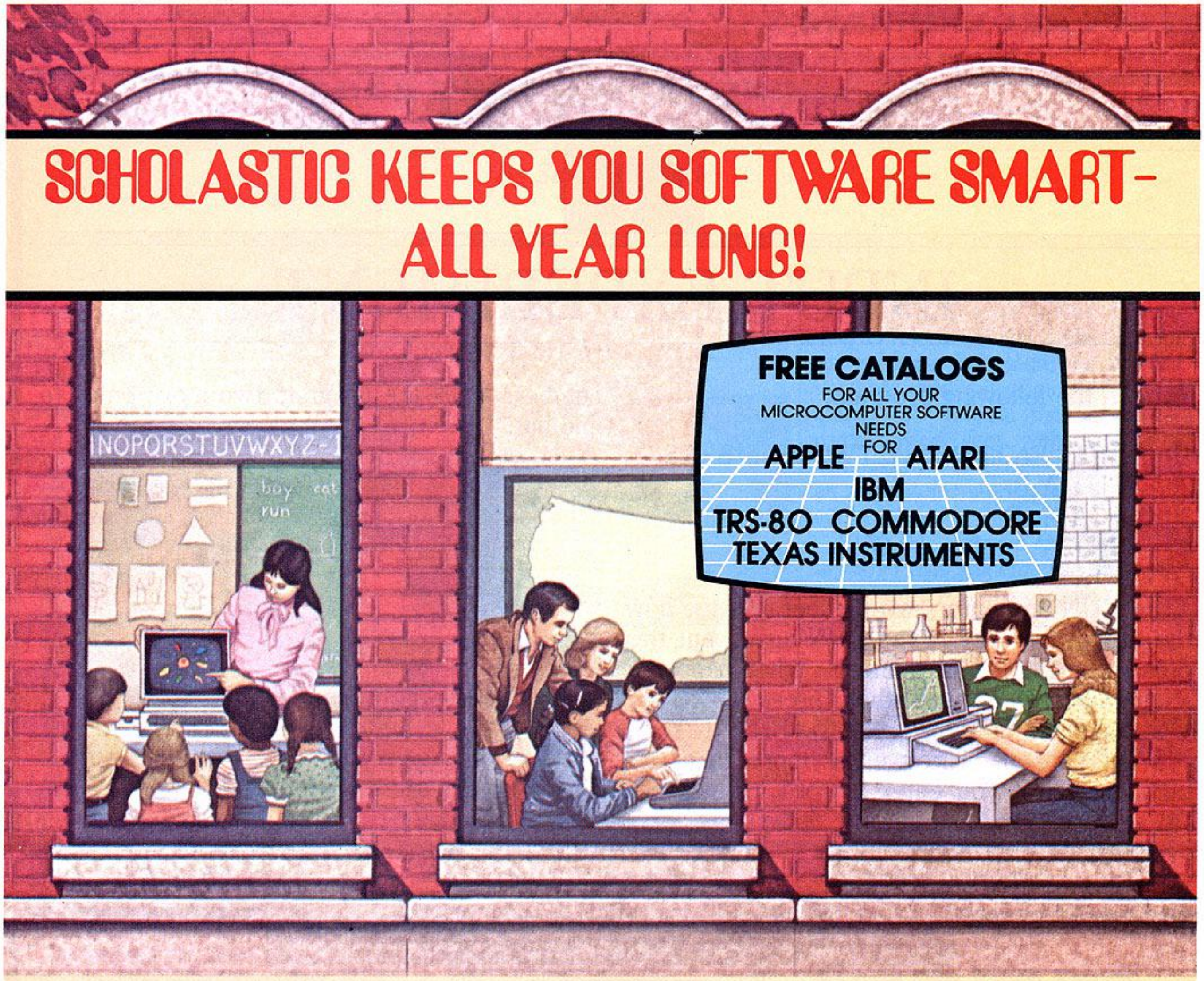
Find out your height in centimeters. Then find the height, in centimeters, of three of your friends.

Type the following program into your computer. Remember to type the commas between variables.

```
NEW
10 INPUT "TYPE IN THE FOUR RESULTS OF YOUR MEASUREMENT TEST";B,C,D,E
20 A = (B + C + D + E)/4
30 PRINT "THE AVERAGE IS ";A
40 END
```

RUN the program. When the program asks, enter the number for each of your measurements. The program will give you the average height of you and your three friends.





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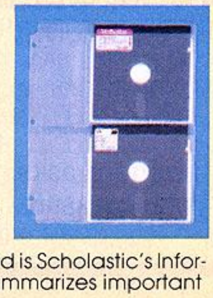

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LEARNING CENTER TASK CARD

23

FORTUNE TELLER

This program will tell your fortune! Type it into your computer and RUN it to see into the near future.

```
NEW
10 PRINT “TYPE ANY SIX NUMBERS FROM 1 TO 100.”
20 INPUT A,B,C,D,E,F
30 PRINT “YOU WILL HAVE TO CLEAN YOUR ROOM ”;D;“ TIMES NEXT WEEK.”
40 PRINT “YOU WILL SUDDENLY GROW ”;A;“ INCHES TOMORROW.”
50 PRINT “YOU'LL GET ”;F;“ PRESENTS ON YOUR NEXT BIRTHDAY.”
60 X = (B + C)-E
70 PRINT “SOMEDAY YOU'LL HAVE ”;X;“ CHILDREN!”
80 END
```

Happy Birthday

LEARNING CENTER TASK CARD

24

SPORTS CAR RALLY

Enter the Southeastern Sports Car Rally! Use a road map to find the shortest route between each checkpoint on the map. Write the mileage on a piece of paper.

Roll a pair of dice to see how many one-hour pit stops you'll make.

Type in the program listing. RUN it and input your mileage to see your finishing time.

```
NEW
10 INPUT “HOW MANY MILES BETWEEN EACH CHECKPOINT”;A,B,C,D,E,F,G,H
20 M = A + B + C + D + E + F + G + H
30 INPUT “HOW MANY PIT STOPS DID YOU MAKE”;X
40 S = 55
50 T = M/S + X
60 PRINT “IT TOOK YOU ”;T;“ HOURS TO FINISH THE RACE.”
70 END
```

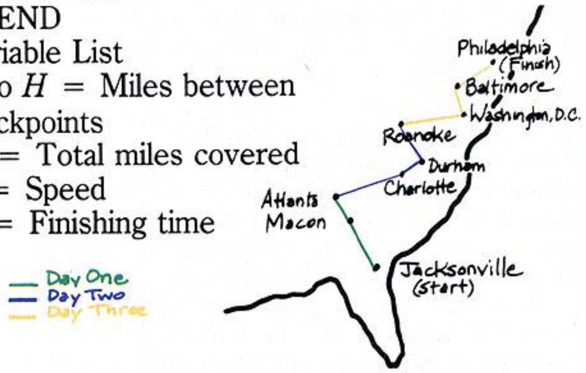
Variable List

A to *H* = Miles between checkpoints

M = Total miles covered

S = Speed

T = Finishing time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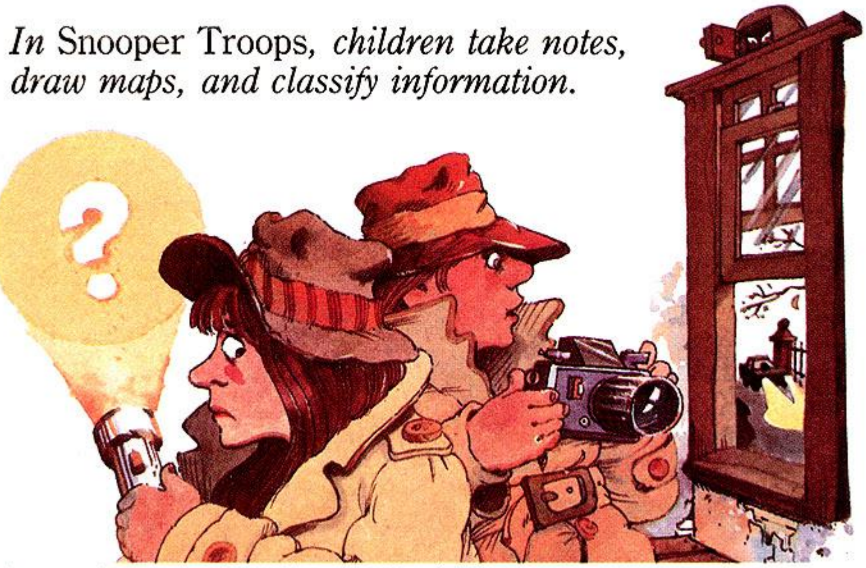
Day One
Day Two
Day Three

COMPUTING IN THE CONTENT AREAS

Develop Reasoning Skills With Snooper Troops

By Amy Dombro and Barbara Dubitsky

In Snooper Troops, *children take notes, draw maps, and classify information.*



Someone is haunting Cable Mansion. Who is it?

SOFTWARE: *Snooper Troops, Case #1*
AGE LEVEL: 10 to adult
PURPOSE: Develops writing, mapping, and deductive reasoning skills.
CURRICULUM AREAS: Social Studies, Reading
HARDWARE AND PERIPHERALS: Available on disk for the Apple II, Atari 800, IBM PC, and Commodore 64 computers.
PUBLISHER: Spinnaker Software, 215 First Street, Cambridge, MA 02142.
PRICE: $44.95 for Apple II, Atari 800, and IBM PC computers; $39.95 for Commodore 64.

Program Description

Snooper Troops, Case #1: The Granite Point Ghost is the first of two *Snooper Troops* programs that simulate a detective's attempt to solve a crime. In both *Snooper Troops* programs the user acts as a detective who drives a SnoopMobile around town collecting clues in an attempt to narrow a list of eight suspects to one.

In *Snooper Troops, Case #1*, the detective must find out who is trying to scare the Kim family out of its new home. The computer program provides you with all the equipment you'll need: a SnoopMobile, a wrist radio, a SnoopNet computer, and a camera.

Students are given a booklet that contains eyewitness reports, photographs, and background notes on the key people associated with the crime. The booklet also provides space in which to organize notes and a special page for drawing a map of the town. The detective quickly finds that it is necessary to read the booklet carefully to get a better understanding of the suspects and their actions.

Good note taking is crucial in *Snooper Troops*. To solve the mystery, the detective is required to keep track of all information available, such as the suspects' phone numbers, addresses, and habits.

Important clues are given throughout the program. The detective must make inferences and test hypotheses to solve the crime.

Using the Program in the Curriculum

Students can use *Snooper Troops* individually or as a group.

To solve the mystery as part of a group assignment, assign individual students to specific jobs. For instance, one student can be responsible for making the map, another for keeping track of phone numbers and addresses, while a third can drive the SnoopMobile and move the detective on the screen.

There will be plenty of interaction between the players. The detective will need to get addresses from the student who is compiling this information. To go to these addresses, the detective will then need directions from the student making the map of the town.

After your students have had a chance to work on the program, you may want to try the following activities to supplement some of the skills and concepts used in *Snooper Troops, Case #1*.

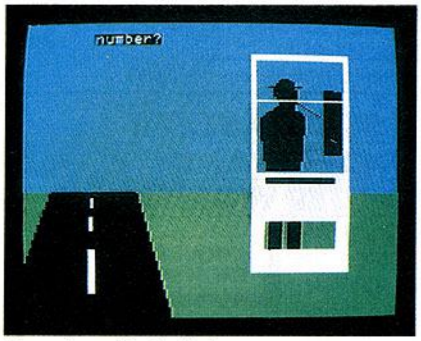
- Tell your students that *Snooper Troops* is a *simulation program*. A simulation program imitates a situation. In the case of *Snooper Troops*, students imitate a detective solving a mystery.

On the chalkboard, have students list other ways in which simulations are used in the world. For example, some people learn to drive by using a car simulation, and astronauts use simulators of space ships. Have groups of students select a simulation from the board and dramatize it. For example, in simulating an airplane flight, one student could act as the pilot, who actually flies the plane; another student as the copilot, relaying information and data to the pilot; and a third student could be the navigator, who determines and plans the flight's course. The crew in the cockpit could be communicating with the ground crew—an air traffic controller and a radar tracker—as it waits to receive clearance for takeoff and landing.

- As students use *Snooper Troops, Case #1*, they will discover that a good detective must take good notes. Here's an activity that will give your students experience in note taking. Have everyone agree to watch a particular detective show on TV. As they watch the show, students are to jot down all the important clues the detective uses to solve the mystery. For instance, in an episode of "Columbo," one action that helps the detective learn that Mr. Johnstone is the murderer is checking his phone bill to learn that he did have contact with the victim on the day of the murder, even though he denies it.

Tell your students to bring in their notes the following day to compare their lists.

•Detectives find clues not only through research, but also by being observant. Test your students on how much they observe. Ask the custodian to come into your class, change a light bulb, and then leave. Now ask your students to write down everything they observed and remembered. Did anyone notice the color of the custodian's socks? Was a toolbox brought in?



Detective calls for info on suspect.

You may find that some of your students did not notice any details, while other students remembered many. After you've explained the importance of observing actions and details, ask the custodian to come in again, this time bringing in an overhead projector. Once the custodian has left the room, have your students again write down what they observed. This time they should remember and observe more.

•For some students, *Snooper Troops, Case #1* may be the first time they have ever created a map. To help your students become comfortable with using maps, instruct them to map out a route they use daily—their route to and from school. When the

(continued on page 52)

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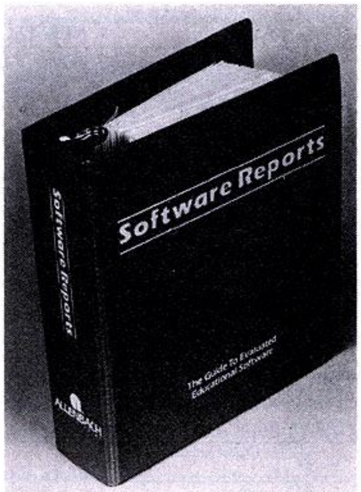

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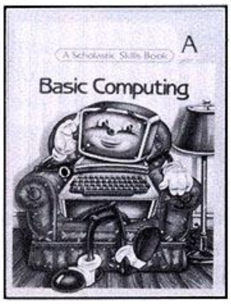

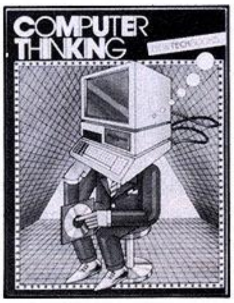

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COMPUTING IN THE CONTENT AREAS

(continued from page 51)

maps are complete, tell the students to use the maps to find their way home. The following day ask your students if the maps they made brought them home. If not, did they leave out a street or a turn?

- Maps can be deceiving if they are not drawn to a proper scale. Explain to your students that in map making, if an object or a location is not drawn in the correct relation to the size of or distance from those things around it, the map can be misleading.

As a homework assignment, instruct your students to draw a scale map of their bedroom. Point out details they should watch out for, such as making sure that the poster on the wall is not a bigger rectangle than the bed and that the closet door is larger than the window.

- Using a map can be challenging and full of surpises. Design a treasure hunt for your class that can be played in the classroom or on the school playground.

Divide the class into groups of three students. Give each group a map and clues to indicate what the treasure is and where it is located. For instance, one clue might be: "Go to the Book of Words (the dictionary) and turn to page 468." The treasure seekers would look on the map to locate the dictionary, go to the dictionary, and turn to page 468. Place a note between the page which says, "Locate the coatroom and your treasure will be revealed." Using the map, the students would find the coatroom and locate the treasure. ■

Amy Dombro is the head teacher of the Infant Center at the Bank Street College of Education, New York City. ***Barbara Dubitsky*** is the director of the Graduate Certificate Program in Computers in Education at Bank Street College.

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CIRCLE 36 ON READER SERVICE CARD

PROGRAM OF THE MONTH

By Richard Bollinger

Blood bank technician at work.

A science lesson that investigates human blood types.

The *Computer Blood Bank* program checks the blood types of a donor and a recipient to determine if a transfusion is possible. Not just any human blood type can be donated to, or "mixed with," another. In this program, students learn which blood types are compatible.

How the Program Works

A "recipient" and a "donor" enter their names and blood types. The program determines if a transfusion is safe by comparing ABO and RH blood types.

Despite ABO and RH compatibility, blood mixing still may clump, although the probability is very low. As a further safeguard, a *crossmatch test* (the actual mixing of blood samples to check for clumping) is used. This test is included in the program.

If blood types are not compatible, students can select another recipient or donor, or end the program.

Using the Program in Your Science Curriculum

Following are discussion topics and activities for using *Computer Blood Bank* in a unit on health or the human body.

1. Discuss blood types and transfusions. All humans have one of four blood types: A, B, AB, or O. When one human gives blood to another *(a transfusion)*, blood types must be compatible. Otherwise, blood clumps together, and the recipient may die.

Blood types indicate the presence or absence of A and B *antigens*. Antigens produce *antibodies* that attack foreign particles in the body. Type A blood, for example, has A antigens that produce anti-B antibodies. When types A and B blood are mixed, the anti-B antibodies "attack" particles in the type B blood. That's what produces clumping.

Type O blood has no antibodies. Therefore, it can be added to any blood type without causing clumping. Type AB blood, on the other hand, contains both A and B antigens. It can only be donated to another AB blood type. (For more information on blood type relationships, see chart on this page.)

Blood can also be RH (Rhesus) positive or negative. Most people are RH positive, meaning their blood has RH antigens. Blood from an RH positive donor can only be given to an RH positive recipient. An RH negative type may give to either an RH positive or negative recipient.

Ask students why they think someone might need a transfusion. Common reasons are blood loss from accidents or surgery. Transfusions also help patients with anemia, hemophilia (inability of blood to clot), shock, and leukemia.

2. Check blood types. Have students use a blood testing kit to determine their blood types. (See list of suppliers at end of article.)

They are now ready to use *Computer Blood Bank*. After students have played both donor and recipient roles, have them construct a chart showing transfusion relationships. Here's a sample:

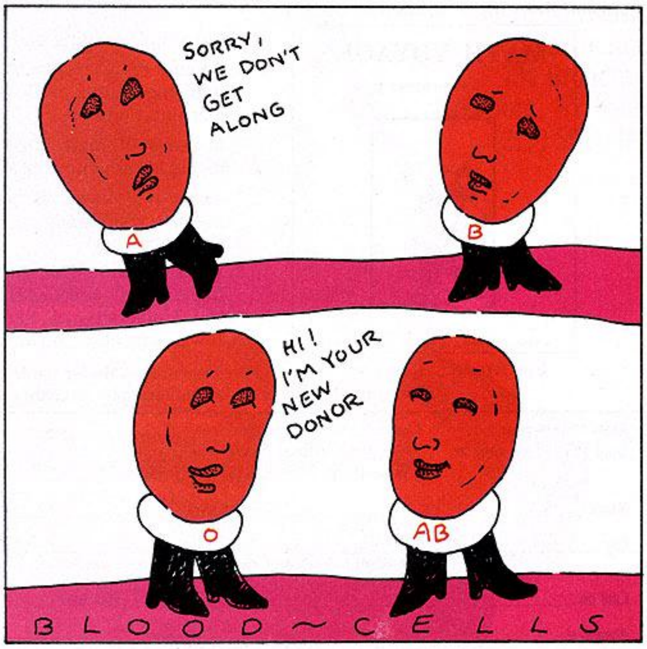
Transfusion Relationships of A-B-O Blood Groups

Blood Group	Can Donate to:	Can Receive from:
O	O,A,B,AB	O
A	A, AB	O,A
B	B, AB	O,B
AB	AB	O,A,B,AB

(continued on page 56)

Program Listing for *Computer Blood Bank*
This program listing is for Atari computers. To convert the program for use on Apple, Commodore, Radio Shack, and TI computers, see chart, page 76.

```
1 DIM R$(25),RB$(3),D$(25),DB$(25)
2 DIM E$(1),DH$(3),RH$(3)
3 REM COMPUTER BLOOD BANK
4 PRINT CHR$(125)
10 PRINT "WELCOME TO THE COMPUTER BLOOD BANK."
20 PRINT :PRINT "PLEASE ENTER THE NAME OF THE"
30 PRINT "RECIPIENT AND PRESS RETURN."
40 INPUT R$
50 PRINT CHR$(125)
60 PRINT "WHY DOES ";R$;" NEED A TRANSFUSION?"
70 PRINT :PRINT "   1. ANEMIA"
80 PRINT "   2. LEUKEMIA"
90 PRINT "   3. HEMOPHILIA"
100 PRINT "   4. SHOCK"
110 PRINT "   5. BLOOD LOSS DUE TO ACCIDENT"
120 PRINT "   6. SURGERY"
130 PRINT "   7. OTHER"
140 PRINT :PRINT "ENTER A NUMBER (1 TO 7) AND
    PRESS"
150 PRINT "RETURN."
160 INPUT I
170 PRINT CHR$(125)
180 PRINT :PRINT "WHICH BLOOD TYPE IS ";R$;"?"
190 GOSUB 1000
200 INPUT RB$
210 PRINT CHR$(125)
220 PRINT "PLEASE ENTER THE NAME OF THE DONOR"
230 PRINT "AND PRESS RETURN."
240 INPUT D$
250 PRINT :PRINT "WHICH BLOOD TYPE IS ";D$;"?"
260 GOSUB 1000
270 INPUT DB$
280 IF DB$="A" AND RB$="O" THEN GOTO 3000
290 IF DB$="A" AND RB$="B" THEN GOTO 3000
300 IF DB$="B" AND RB$="O" THEN GOTO 3000
310 IF DB$="B" AND RB$="A" THEN GOTO 3000
320 IF DB$="AB" AND RB$<>"AB" THEN GOTO 3000
500 PRINT CHR$(125)
510 PRINT "ABO BLOOD TYPES MATCH."
520 PRINT :PRINT "IS THE RECIPIENT, ";R$;", RH"
530 PRINT "POSITIVE OR RH NEGATIVE?"
540 GOSUB 2000
550 INPUT RH$
560 PRINT CHR$(125)
570 PRINT "IS THE DONOR, ";D$;", RH POSITIVE"
580 PRINT "OR RH NEGATIVE?"
590 GOSUB 2000
600 INPUT DH$
610 IF DH$="+" AND RH$="-" THEN GOTO 3000
800 PRINT CHR$(125)
810 PRINT "RH BLOOD TYPES MATCH."
820 PRINT "THE DOCTOR WILL DO A CROSSMATCH
    TEST."
830 PRINT :PRINT "ONE MOMENT, PLEASE....":PRINT
840 X=INT(50*RND(0))+1
850 FOR Y=1 TO 1500:NEXT Y
860 IF X=50 THEN PRINT "CROSSMATCH PRODUCED
    CLUMPING.":GOTO 3020
870 PRINT "CROSSMATCH PRODUCED NO CLUMPING."
880 PRINT "TRANSFUSION IS SAFE."
890 PRINT :PRINT "GOOD LUCK...."
900 END
1000 REM BLOOD TYPES
1010 PRINT :PRINT "TYPE A"
1020 PRINT "TYPE B"
1030 PRINT "TYPE AB"
1040 PRINT "TYPE O"
1050 RETURN
2000 REM RH+ OR RH-
2010 PRINT :PRINT "RH POSITIVE(+)"
2020 PRINT "RH NEGATIVE(-)"
2030 PRINT :PRINT "ENTER + OR - AND PRESS
     RETURN."
2040 RETURN
3000 REM TRANSFUSION UNSAFE
3010 PRINT CHR$(125)
3020 PRINT "BLOOD TYPES DO NOT MATCH."
3030 PRINT "TRANSFUSION MAY BE HARMFUL TO THE"
3040 PRINT "RECIPIENT."
3050 PRINT :PRINT "WHAT DO YOU THINK IS THE
     BEST COURSE"
3060 PRINT "OF ACTION?"
3070 PRINT :PRINT "   1. TRY ANOTHER DONOR."
3080 PRINT "   2. TEST A NEW RECIPIENT AND
     DONOR."
3090 PRINT "   3. END THE PROGRAM."
3100 PRINT :PRINT "ENTER THE NUMBER OF YOUR
     CHOICE AND"
3110 PRINT "PRESS RETURN."
3120 INPUT C
3130 IF C=1 THEN 210
3140 IF C=2 THEN 4
3150 IF C=3 THEN END
```


SORRY, WE DON'T GET ALONG
A
B
HI! I'M YOUR NEW DONOR
O
AB
BLOOD ~ CELLS

Susan Gaber

CIRCLE 14 ON READER SERVICE CARD

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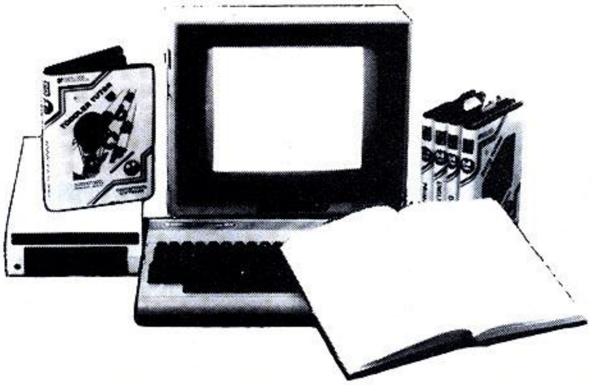

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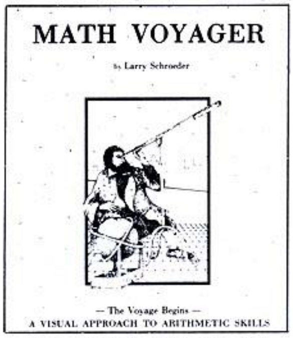

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CIRCLE 16 ON READER SERVICE CARD

PROGRAM OF THE MONTH

(continued from page 54)

Ask students why AB is called the "universal recipient" and O is called the "universal donor." *(People with AB blood can receive A, B, AB or O blood. People with O blood can donate to people with A, B, AB, or O blood.)*

Graph the percentage of A, B, AB, and O, and of RH positive and RH negative students in the class. Have each student make a list of all classmates who could safely donate blood to him or her.

3. Visit a blood bank. In the early 1900s, donors and recipients laid side by side, and the blood was transferred immediately. Now, blood from a donor is stored in containers until it is needed.

Arrange a field trip to a local blood bank to show students how a modern blood bank operates.

Suppliers of Blood Typing Kits

Editor's note: Kit prices quoted are based on a 30-student standard.

- Carolina Biological Supply Co., 2700 York Rd., Burlington, NC 27215; $17.50.
- Central Scientific, 11222 Melrose Ave., Franklin Park, IL 60131; $11.50 (50 students).
- Connecticut Valley Biological Supply Co., PO Box 326, Southampton, MA 01073; $8.50.
- Fisher Educational Materials, 4901 W. LeMoyne St., Chicago, IL 60651; $7.50.
- Nasco, 901 Janesville Ave., Fort Atkinson, WI 53538; $8.50.
- Redco-Science Inc., 11 Robinson Ln., Oxford, CT 06483; $8.50.
- Sargent Welch, 7300 N. Linder Ave., PO Box 1026, Skoke, IL 60077; $11.75 (25 students).
- Science Kit, Inc., 777 E. Park Dr., Tonawanda, NY 14150; $10.95. ■

Richard Bollinger teaches science to gifted students at P.S. 85, District 10, Bronx, New York.

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CIRCLE 43 ON READER SERVICE CARD

MICRO IDEAS

Quick Computer Tips and Activities

Prevent Static with Fabric Softener

Ideally, a computer stand should rest on hard flooring. Today, however, many newer schools have installed wall-to-wall carpeting. While carpeting is great for reducing noise and heat loss, it causes a lot of static around the computer.

To help prevent static shocks, I spray a solution of fabric softener and water on the carpet around the computer. In a plastic spray-bottle, I mix three parts water to one part softener. The solution does not completely eliminate the static problem, but it greatly reduces it. ☐

Laurie Simpson
Sacramento, CA

Conduct a Logo Parade

Practice executing Logo commands by conducting a classroom parade. Clear the desks and chairs from the center of the classroom; this will be the parade route. Select a student to be the grand marshall, the person who will call out Logo commands and lead the parade. You may want to be the grand marshall yourself for the first few times, until students become familiar with the procedure.

The grand marshall leads the students in forming circles, squares, and rectangles by calling out the commands in Logo. For instance, to make a square the grand marshall would call out, "To square. Forward 20. Right 90. Forward 20. Right 90. Forward 20. Right 90. Forward 20. Right 90." Students follow the grand marshall in walking forward 20 steps and turning right, walking 20 more steps, and so on.

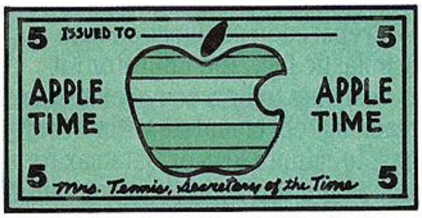
Let kids take turns being the grand marshall. ☐

Eleanor Zimmerman
Lock Heaven, PA

Award Computer Coupons

To reward students for their achievements in different subjects, I give them computer coupons—coupons worth extra time on the computer. They are easy to make, but hard to acquire.

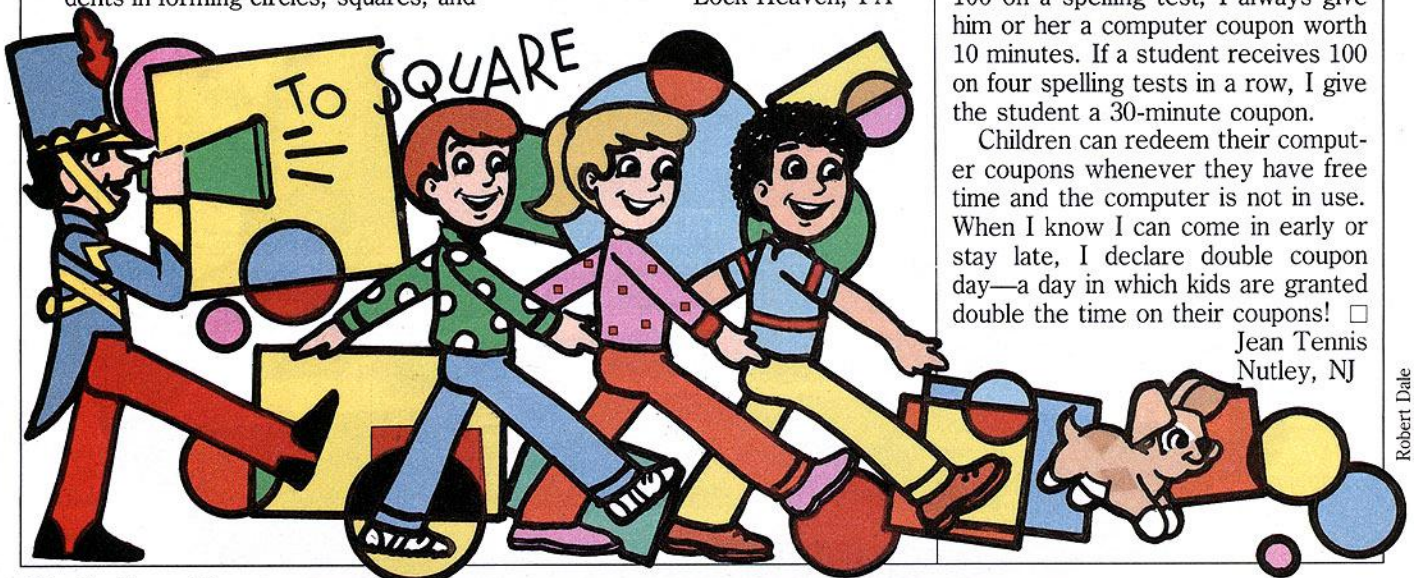
To make the coupons, cut green construction paper into 6″ x 2½″ rectangles. In each corner, write the value of the coupon, which might range from 10 minutes to 30 minutes of computer time. Across the top write "Issued to" and leave a space to fill in a deserving student's name. Along the bottom, sign your name and title, Secretary of the Time. Because we use Apple computers, in the center of the coupon, I draw a large apple with a bite out of it—like Apple Computer Inc.'s trademark.



It's important to set specific objectives for awarding computer coupons. For example, if a student receives 100 on a spelling test, I always give him or her a computer coupon worth 10 minutes. If a student receives 100 on four spelling tests in a row, I give the student a 30-minute coupon.

Children can redeem their computer coupons whenever they have free time and the computer is not in use. When I know I can come in early or stay late, I declare double coupon day—a day in which kids are granted double the time on their coupons! ☐

Jean Tennis
Nutley, NJ



Robert Dale

Wish Students a Happy St. Patrick's Day

Greet your students this St. Patrick's Day with an unusual computer message. The Radio Shack Color Computer program listed below builds a string of characters that move from left to right across the montior screen. As the characters reach their final destinations on the far left of the screen, they begin to spell out a special March message: HAPPY ST. PATRICK'S DAY!

```
10 CLS
20 S$ = “HAPPY ST. PATRICK’S DAY!”
30 FOR I = 1 TO 24
40 C$ = MID$(S$,I,1) + “ ”
50 IF C$ = “ ” THEN 100
60 FOR J = 31 TO I STEP -1
70 PRINT@J+224, C$
80 FOR D = 1 TO 50: NEXT
90 NEXT J
100 NEXT I
```

Type in RUN and press ENTER. The message will start to appear. ☐

Dave Kirchner
Denver, CO

Quick Tip

Plan a field trip to a local computer store. You'll find that the sales people are usually happy to demonstrate a variety of machines and software to children—particularly if the store services your school with hardware and software. ☐

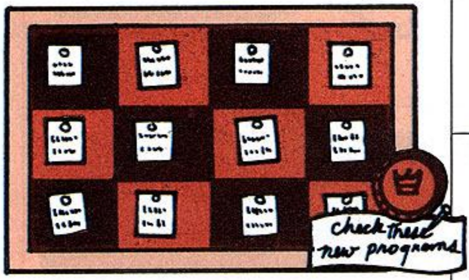
Shelia Larson
Detroit, MI

Check Out New Programs with This Bulletin Board

Here's a bulletin board I use to display children's original program listings. I glue each listing to a red or black sheet of construction paper and arrange the papers on a bulletin board, in checkerboard fashion. Next to the "checkerboard," I draw a black checker logo, and under that I write in bold black letters: "Check These New Programs."

I encourage children to try each other's programs. ☐

Anne Ritchie
Louisville, KY



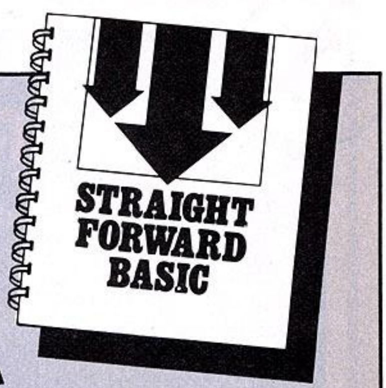
Create New Program Folders

To encourage my students to write programs, I have developed "Create Your Own Program" folders. Each folder contains a program listing that students have worked with in the past.

Students each select a folder and take it home. As a homework assignment, they study the listing and decide how it can be changed to create a new program. When the students return to class, they try out their new program by typing the new listing into the computer and running it. If the program works, they make a printout of the listing and include it with the original program in the folder. They also store the new program on their own cassette. If the program doesn't work, they try to debug it. ☐

Mary E. Drew
Calumet City, IL

(continued)



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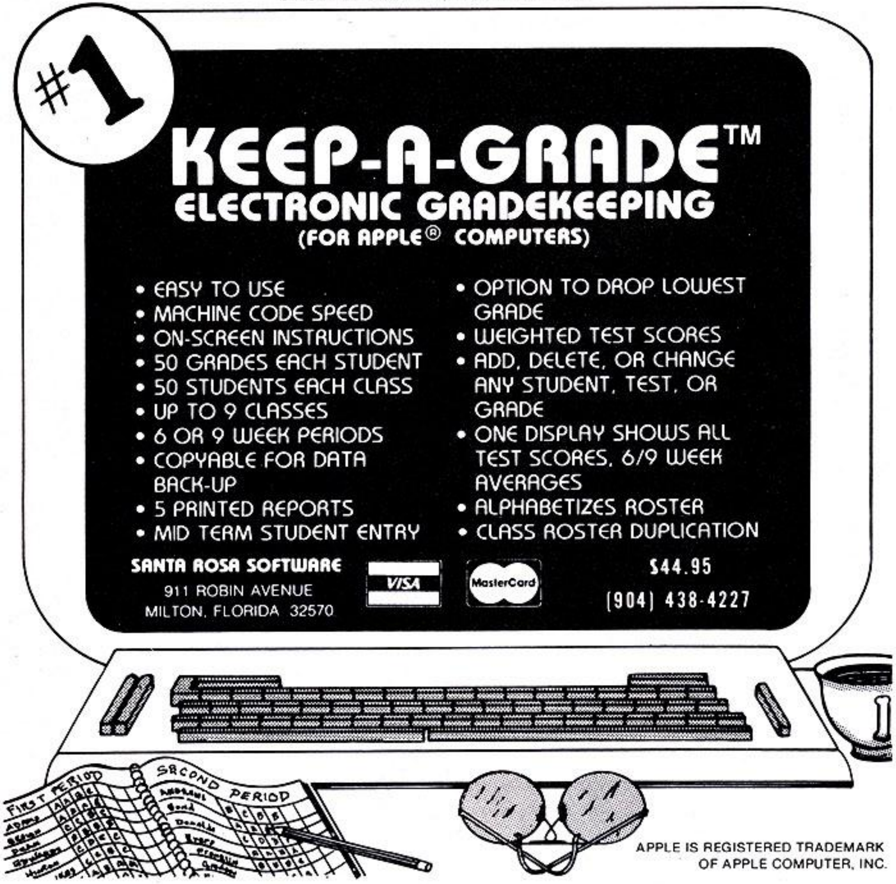
CIRCLE 33 ON READER SERVICE CARD



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CIRCLE 17 ON READER SERVICE CARD

MICRO IDEAS

(continued from page 59)

Decode the Computer

When you press keys on the keyboard, the inside of the computer does not see anything like the letters *a* or *b*. Instead, it has an electronic code for each letter of the alphabet, symbol, numeral, and so on.

Called the binary code, it uses two symbols, 0 and 1, to represent all data. One of these symbols is called a binary digit, or bit. Several bits organized in order represent a letter, number, or punctuation mark.

There are several binary codes. The most common is ASCII (American Standard Code for Information Interchange). Type in the Apple program listed below. The program will list all of the symbols used by the computer, and the ASCII code number for each. Print out a list for every student and have students practice writing and reading messages in the ASCII code.

```
10 PRINT
20 PR #1
30 PRINT “CHARACTER”; SPC (10);“ASCII CODE”
40 FOR H = 1 TO 29: PRINT “-”;:NEXT : PRINT
50 FOR I = 33 to 93
60 PRINT SPC( 4); CHR$ (I);
70 FOR J = 1 TO 17: PRINT “.”;:NEXT
80 PRINT I
90 NEXT
100 PR# 0
110 END
```

Michael Milone
Honesdale, PA

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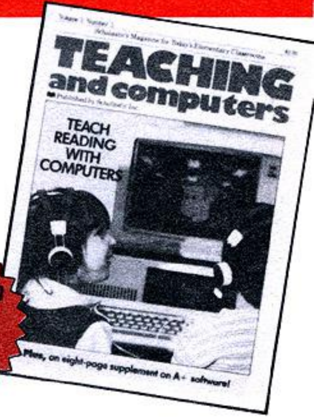
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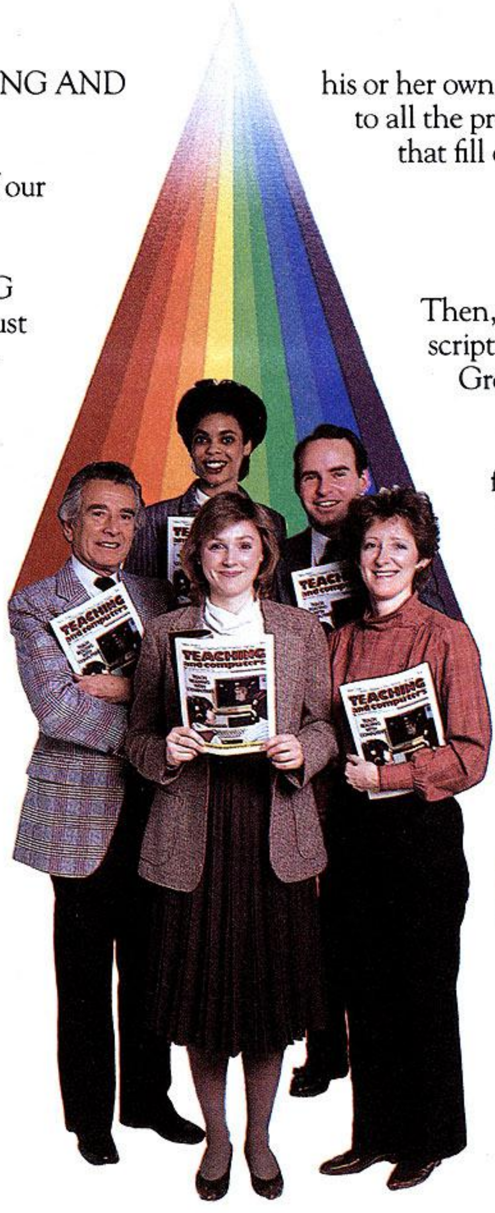

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TEACHING and computers
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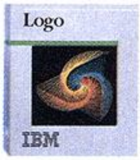
IBM Logo

The value of making friends with a turtle.



The triangular "turtle" in the IBM Logo computer language is anything but slow. In fact, this little turtle can quickly help students think logically in the abstract.

Computer literacy, literally.

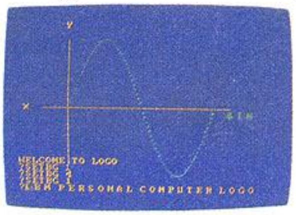
IBM Logo helps students think *and* do. In minutes, they can be writing their first real computer program. With simple terms like left and right, they can program the turtle to create on-screen angles, arcs, squares and spirals.

In living color, they sharpen their problem-solving skills, become more self-reliant and discover that accomplishment can be lots of fun. Yet IBM Logo goes far beyond computer literacy.

Joining the knowledge race.

Teachers in higher grades can use IBM Logo during trigonometry and physics lessons.

Students can use it to diagram an atom. Study centrifugal force. Draw the constellation of Sagittarius or print out the flag of Switzerland. And anyone interested in programming can use IBM Logo as preparation for more advanced computer languages.



Yes, this turtle is a different animal.

To learn more about the Education Family of programs (as well as the six *other* program families in the extensive IBM software library), visit your authorized IBM Personal Computer dealer. To learn where, call 800-447-4700. In Alaska or Hawaii, 800-477-0890.

IBM®

Personal Computer Software

CIRCLE 40 ON READER SERVICE CARD

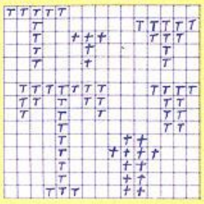
LOGO NOTEBOOK

LESSON SIX: Introducing the Textscreen

By Steve Tipps and Tom Lough

In lessons one through five of Logo Notebook, students used the Logo turtle to construct geometric shapes. Lesson six teaches students how to use Logo's TEXTSCREEN mode to produce words and messages. Instruction begins with simple pencil-and-paper activities and progresses to actual text activities on the computer.

1. Letter Letters

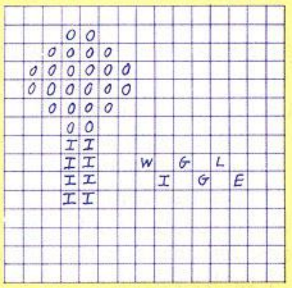


Objective: Students make designs on graph paper, using letters and symbols. Later, students will reproduce their "letter letters" on the Logo screen.

Activity: On graph paper, use tiny letter *T*'s to construct a larger letter *T*. (See samples at left.)

Pass out copies of blank graph paper to each student. Using your large letter *T* as an example, have students construct similar letters to represent their names or initials. Encourage them to make the letters in different sizes and positions, such as sideways or upside down.

2. Letter Pictures



In these pictures, letters are grouped together to form visual images.

Objective: Students use letters to construct pictures on graph paper.

Activity: Show students samples (at left) of pictures made by combining letters. In one of the examples at left, an arrangement of *O*'s makes the top of a tree, while two rows of *I*'s form its trunk. Have students use letters to make their own pictures.

Next, introduce students to *calligrams,* or concrete picture poems. In a calligram, all the letters of a word make up a picture that is somehow representative of that word. For example, in the illustration of the word *wiggle,* at left, the letters are positioned in a way that makes them look as if they are wiggling.

Have students make their own calligrams. Some calligram suggestions are: *teepee, square, circle, car, city, boat, water,* and *house.*

Extension: (1) Make a class dictionary of calligrams. (2) Challenge your students to create a whole scene containing several calligram poems.

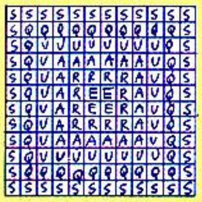
3. Introducing . . . PRINT commands!

Objective: Students learn to write messages on the computer.

Activity: Explain to students that the PRINT command (LCSI and MIT Logo only) tells the computer to print letters, numbers, or characters on the screen. PRINT [HELLO], for example, prints the word HELLO. Ask students what PRINT [] prints. *(A blank line.)* To print a blank line in TI Logo, use the following command sequence: REPEAT 30 [PRINTCHAR 32]. The PRINTCHAR 32 command prints a blank space. Because there are 30 blank spaces on a line, repeating that command 30 times produces a blank line.

Review the REPEAT command with students (lesson four of Logo Notebook). On the board, write REPEAT 100 [PRINT [MEGAN]]. This prints the name *Megan* 100 times.

LOGO NOTEBOOK



```
SSSSSSSSSSSS
SQQQQQQQQQQS
SQUUUUUUUUQS
SQUAAAAAAUQS
SQUARRRRAUQS
SQUAREERAUQS
SQUAREERAUQS
SQUARRRRAUQS
SQUAAAAAAUQS
SQUUUUUUUUQS
SQQQQQQQQQQS
SSSSSSSSSSSS
```

Use simple PRINT statements to make a calligram.

The commands REPEAT 100 [PRINT1 [DANA]] (MIT Logo) or REPEAT 100 [TYPE [DANA]] (LCSI and TI Logo) print 100 *Dana*'s, one after the next. (**Editor's Note:** LCSI Logo refers to Logo programs developed by Logo Computer Systems, Inc. Programs include Apple Logo, Atari Logo, and IBM Logo. MIT Logo refers to Krell, Terrapin, and Commodore Logo. Some commands may vary. Check your user's manual for details.)

Encourage students to use PRINT commands to make simple designs, such as the square at left. Students can also use PRINT to add captions or titles to their pictures.

By entering the Logo EDITOR mode (see lesson five), students can write short stories or poems.

Extension: (1) Use REPEAT to fill exactly one line with the letter *A*. (2) Find out how many letters will fit into a single PRINT statement. (3) Make a starry night or a snowfall using PRINT statements and asterisks.

---

4. PRINT Commands: Part II

Objective: Students learn more commands for making designs.

Activity: In order to transfer their graph paper designs to the computer, students need to know a few more commands.

To clear the screen of text, use the NODRAW command (MIT Logo) or the following NODRAW procedures:

LCSI Logo

```
TO NODRAW
  TEXTSCREEN
  CLEARTEXT
  SETCURSOR [0 0]
END
```

TI Logo

```
TO NODRAW
  TELL TURTLE
  NOTURTLE
END
```

Challenge students to use NODRAW to make a message flash on the screen. Here are sample programs:

MIT and LCSI Logo

```
TO HELLO
  NODRAW
  PRINT [HELLO, ROBIN!]
END

TO FLASH.HELLO
  REPEAT 10 [HELLO]
END
```

TI Logo

```
TO HELLO
  NODRAW
  TYPE [HELLO, ROBIN!]
END

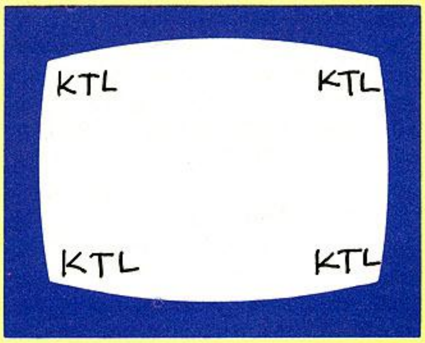
TO FLASH.HELLO
  REPEAT 10 [HELLO]
END
```

These programs will flash the message "HELLO, ROBIN!" very quickly. To slow them down, insert WAIT 10 (LCSI and TI Logo) or REPEAT 500 [] (MIT Logo) after NODRAW in the HELLO procedure. REPEAT 500 [] tells the computer to do nothing for the count of 500. Try different speeds by changing the value after WAIT or REPEAT.

Use the PRINT [] command (LCSI and MIT) or REPEAT 30 [PRINTCHAR 32] command (TI) to put a message on any line. For example, REPEAT 10 [PRINT []] or REPEAT 300 [PRINTCHAR 32] moves the cursor to the 10th line of the screen.

Have students experiment with flashing messages at different speeds and locations on the screen.

5. Put-the-Cursor



Objective: Students learn to manipulate the cursor, using the CURSOR or SETCURSOR commands.

Activity: The commands, SETCURSOR (LCSI) and CURSOR (MIT), move the cursor to any coordinate location on the screen. For TI Logo, vary the number of repeats in the REPEAT X [PRINTCHAR 32] sequence.

To move the cursor across 20 spaces and down 10 lines, for example, use these commands:

```
CURSOR 20 10 (MIT)
SETCURSOR [20 10] (LCSI)
REPEAT 320 [PRINTCHAR 32] (TI)
```

Set up Put-the-Cursor challenges such as the following:

1. Put the cursor in the lower, right corner and print your name.
2. Put the cursor in the upper, left corner and print your school.
3. Put the cursor in the middle of the 10th line and print your family name.
4. Put the cursor in each corner and print your initials.

What happens when the last line is filled? *(In MIT and LCSI Logo, the text scrolls upward. In TI Logo, the cursor goes to the top of the screen.)* What happens when you run out of space on a line? *(Words wrap around to the next line.)*

Have students convert the Put-the-Cursor challenges into procedures. Here's a sample procedure for placing initials in the four corners of the screen:

MIT Logo

```
TO INITIAL
  PRINT [KTL]
END
```

```
TO PUT.INITIALS
  NODRAW
  CURSOR 5 2 INITIAL
  CURSOR 35 2 INITIAL
  CURSOR 5 22 INITIAL
  CURSOR 35 22 INITIAL
END
```

LCSI Logo

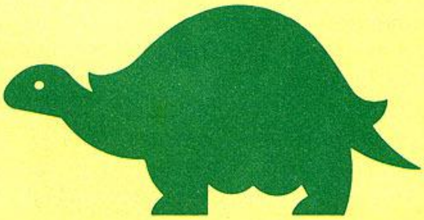
```
TO INITIAL
  PRINT [KTL]
END
```

```
TO PUT.INITIALS
  NODRAW
  SETCURSOR [5 2] INITIAL
  SETCURSOR [35 2] INITIAL
  SETCURSOR [5 22] INITIAL
  SETCURSOR [35 22] INITIAL
END
```

TI Logo

```
TO INITIAL
  TYPE [KTL]
END
```

```
TO PUT.INITIALS
  NODRAW
  REPEAT 65 [PRINTCHAR 32]
INITIAL
  REPEAT 15 [PRINTCHAR 32]
INITIAL
  REPEAT 489 [PRINTCHAR 32]
INITIAL
  REPEAT 15 [PRINTCHAR 32]
INITIAL
  REPEAT 60 [PRINTCHAR 32]
INITIAL
END
```



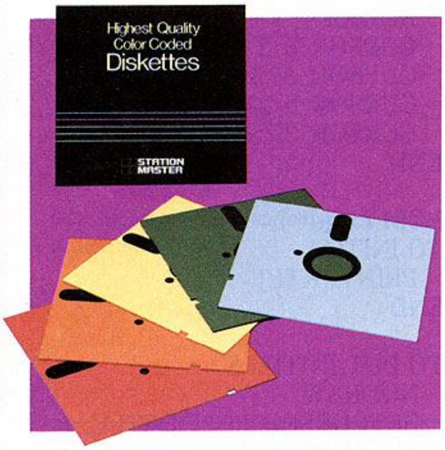
Steve Tipps is assistant professor of education at the University of Virginia, and ***Tom Lough*** is editor of the *National Logo Exchange* newsletter in Charlottesville, VA.

Rea Ackerman

TOOLS OF THE TRADE

New and Useful Computer Products

Colorful Diskettes



Organize your diskettes for instant identification by using disks of different colors. Potomac Industries has developed Station Master Colored Diskettes that come in 10 different colors. You can store math programs on, say, blue disks, social studies material on green disks, and so on.

Double-sided or single-sided diskettes can be purchased in packages of 10 or 100.

Price: *$44.95 for package of 10 double-sided diskettes; $265 for package of 100 single-sided diskettes.* Contact: *Potomac Industries, Ltd., 2501 M Street N.W., Suite 370, Washington, DC 20037; 202/833-2182.* □

(Circle 1 on Reader Service Card.)

Computer Activity Cards

Milton Bradley has created two exciting sets of task cards that teach beginning programming skills. One set, Beginning with BASIC, introduces students to the BASIC language. The other, Programming Animation and Graphics, shows kids how to make graphic designs and animated art on the computer.

The Beginning with BASIC card sets are available for Apple II, TRS-80, Commodore Pet, Atari 400 and 800, and TI 99 computers. The Programming Animation and Graphics sets are available for Apple II and TI 99 computers.

Price: *$9.95.* Contact: *Milton Bradley, 443 Shaker Road, East Longmeadow, MA 01028; 800/628-8608.* □

(Circle 4 on Reader Service Card.)

Turtle Tots

Flexible Systems, the folks who brought you the educational robot known as Tasman Turtle, have now developed Turtle Tot. Turtle Tot is a smaller, more affordable robot that operates in conjunction with an Apple IIe computer. It has many of the features of its older cousin, but at one-third the price.

Programmable in either BASIC or Logo languages, Turtle Tot can move, draw, turn, blink its "eyes," and feel its surroundings with touch sensors. It can be used by children of all ages, including preschoolers.

Price: *$299.* Contact: *Harvard Associates Inc., 260 Beacon Street, Somerville, MA 02143; 617/492-0660.* □

(Circle 2 on Reader Service Card.)

A Micro Magazine

Microzine is a bimonthly children's magazine that comes on a computer disk. Several different types of programs (articles), such as games, stories, and simulations, are available on each disk. The programs allow children to interact with the magazine's features, to create additional program material, and to store information. Each issue comes with a documentation booklet.

Microzine is designed for children ages 10 and older. Four issues are currently available. *Microzine* can be used with Apple II, Apple II Plus, and Apple IIe computers.

Price: *$39.95 per issue; $149 for a subscription of 6 issues.* Contact: *Scholastic Inc., 730 Broadway, New York, NY 10003; 212/505-3000.* □

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Right Notch

Double the capacity of your single-sided disks with Right Notch. This small, handy tool works like a paper-punch. Insert a particular portion of a disk under Right Notch's tooth-like razor and press. The machine makes a square notch just in the right place to allow you to use the reverse side of the disk for storage as well. The razor is encased in plastic, making Right Notch safe for children to use.

Price: *$19.95.* Contact: *HLS Duplication, Inc., 1008 Stewart Drive, Sunnyvale, CA 94086; 408/738-3416.* □

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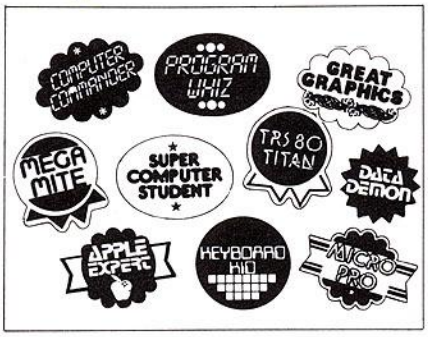
Computer Stickers



Do you know a Computer Commander or a Data Demon? Give those computer students your seal of approval by embellishing their printouts with Chrome Computer Stickers. Printed in black type on chrome foil, these self-adhesive stickers come in packages of 18. There are 10 different designs.

Price: *$1.95.* Contact: *LKP, 1315 W. Belmont Avenue, Chicago, IL 60657; 312/281-7633.* □

(Circle 3 on Reader Service Card.)

First Encounters

First Encounters is a computer literacy and programming kit designed to introduce students as young as five years old to computer terms, operations, and programming skills. The kit contains four in-class games to drill students on computer concepts, a diskette with introductory programs, and 12 worksheets to evaluate and reinforce the computer concepts presented. The teacher's guide gives instructions, examples, and additional activities.

The kit is available for Apple II Plus, Apple IIe, and Commodore 64 computers.

Price: *$98.* Contact: *Educational Activities, 1937 Grand Avenue, Baldwin, NY 11510; 516/223-4666.* ■
(Circle 7 on Reader Service Card.)

FIRST ENCOUNTERS
Computer Literacy and Programming
SHIFT RESET REPT
RETURN
DISKETTE
Educational Activities Inc.
CATALOG
diskette
computer

Details
The Computer EdGame Challenge is a computer programming contest like no other! It's simple, FREE and big prizes, including royalties, can be won. Schools are encouraged to enter games designed by classes, although anyone — individual students, teachers and professionals — can enter.

Contest Divisions
The contest features two major contest divisions, Elementary (K-8) and Secondary (9-12), with mathematics, language arts, sciences, health/nutrition, geography/social studies and miscellaneous categories.

Prizes
Each of the 12 winners will receive a computer system worth more than $1,000, including an ATARI 800XL Home Computer with an ATARI 1050 disk drive and an AMDEK Color-I Plus monitor.

How to Enter
Call (212) 505-3485 for contest information, or write:

The Computer EdGame Challenge
c/o Scholastic Inc.
730 Broadway, New York, NY 10003

Enter The Verbatim Computer EdGame
CHALLENGE
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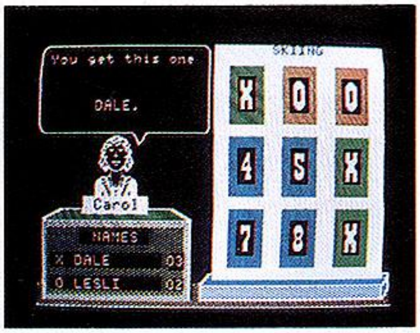


Player scores in Tic Tac Show.

Tic Tac Show

Computer: *Commodore 64, IBM PC, Apple*
Topic: *Authoring program*
Level: *Grade 1–Adult*

Can you guess the name of the tale about the Lost Boys, their leader, and the Darling children? If you said "Peter Pan," you would be on the road to winning *Tic Tac Show.*

That's a question from "Children's Classics," one of the subject categories in *Tic Tac Show.* The program is set up like a TV game show. To play, you select a numbered square on the screen and answer the question associated with it. If you answer the question correctly, the square is marked with an X or an O. When you get three squares in a row, you win.

Players challenge each other or the computer to answer questions correctly in a number of categories. Topics include "Computers," "Sports Facts," "French Vocabulary," and "The Presidents."

But the best part of the game is that you can make your own topics. The manual explains how to use the authoring system and how to save your quizzes on a separate disk.

For students in first to third grades, the teacher can create quizzes with appropriate material. The older students can use the quizzes on the disk or design their own quizzes. Letting students create their own quizzes reinforces concepts learned in any unit of study and motivates group interaction.

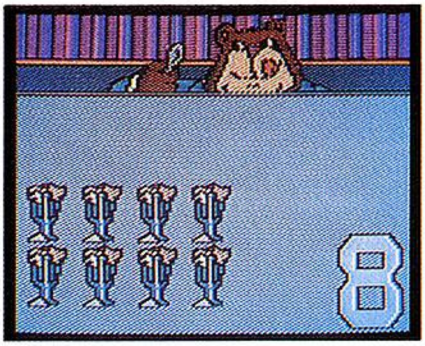
Type of Software: Disk
Price: $39.95
Policy: Send warranty card for free backup disk
Source: Computer Advanced Ideas, 1442-A Walnut Street, Suite 341, Berkeley, CA 94709; 415/526-9100. □

Ann Dana
Microcomputer Consultant
Hinsdale Junior High School
Hinsdale, IL

Stickybear Numbers

Computer: *Apple*
Topic: *Counting*
Level: *Preschool–Grade 1*

Sally presses the number eight. Eight cars roll onto the screen. Then she hits the space bar and one car disappears. Danny has a different method. He presses the space bar first. A big bear gobbles down an ice cream sundae. When Danny presses the space bar again, the bear slurps up another yummy sundae.



Kids count the sundaes devoured by a bear in Stickybear Numbers.

Kids can play *Stickybear Numbers* two ways. They can press any number and see that number of objects, or they can press the space bar and count from zero to nine objects.

With *Stickybear Numbers,* counting is painless, even fun. The colorful graphics and musical sound effects captivate children.

The program comes with a poster that illustrates the numerals from 0 to 9, eight Stickybear stickers, and a hardcover book called *One Bear, Two Bears.* My students take turns borrowing the book for a week.

Type of Software: Disk
Price: $39.95
Policy: $10 backup; 30-day, money-back guarantee
Source: Xerox Educational Publications, P.O. Box 16754, 1250 Fairwood Ave., Columbus, OH 43216; 800/852-5000. □

David Fiday
Media Director
Laraway District 70-C
Joliet, IL

The Math Connection

Computer: *TRS-80 Model I, III, 4*
Topic: *Math*
Level: *Grades 4–8*

In "The Great Robot Race," players determine the remainders for simple division problems. Correct answers move the racing robots toward the finish line.

That's the first game in *The Math Connection.* A second game, "Computo," presents pairs of problems, like $A + B = 9$ and $A \times B = 20$. Students must find values for A and B that satisfy both equations.

The third and final game, "Super Computo," asks students to determine the values of A and B, given their sum, difference, product, and quotient. Because it is more advanced, "Super Computo" is not suitable for students in fourth and fifth grades.

All of the games give hints to guide the user to the correct answer. The teacher's guide documents the programs well and provides reproducible worksheets for skill reinforcement.

I use these games to reinforce previously taught math concepts. "Computo" is excellent for teaching the use of addition and multiplication tables. It also lets kids practice listing a

For more information about the products and services advertised in this issue...

1 Selectively circle the numbers on the reply card.

2 Check the appropriate answers to the reader classification questions.

3 Be sure to fill in your name, school, and address. *(Incomplete information will void the card.)*

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TEACHING and computers

March 1984
(Expires May 1)
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- ☐ c. Junior High
- ☐ d. Senior High
- ☐ e. Junior/Senior
- ☐ f. College
- ☐ g. District
- ☐ h. State
- ☐ i. Federal/National
- ☐ j. Other

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- ☐ 2. Teaching (including Department Head)
- ☐ 3. Evaluation/Purchasing
- ☐ 4. Curriculum Development
- ☐ 5. Media Specialist/Librarian
- ☐ 6. Other

III. What is your primary involvement with computers?
- ☐ a. Actively use computers
- ☐ b. Recommend type/brand
- ☐ c. Approve purchase
- ☐ d. General interest
- ☐ e. All of the above

IV. Your school or district's investment in electronic learning materials.
- ☐ 1. Increasing
- ☐ 2. Decreasing
- ☐ 3. No Change

V. In which area does your school or district use computers? (check one)
- ☐ a. Interdisciplinary (elementary classroom)
- ☐ b. Math
- ☐ c. Reading
- ☐ d. Science
- ☐ e. Business/Vocational Education
- ☐ f. Computer Sciences
- ☐ g. Social Sciences
- ☐ h. English/Language Arts
- ☐ i. Other

VI. How does your school or district use computers?
- ☐ 1. Primarily for administrative purposes
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VII. What type of software has your school/district purchased in the past year?
- ☐ a. Curriculum-based courseware
- ☐ b. Fun/Learning software
- ☐ c. Word Processing
- ☐ d. Utility
- ☐ e. Programming

VIII. Your school/district enrollment
- ☐ 1. Under 300
- ☐ 2. 300–499
- ☐ 3. 500–999
- ☐ 4. 1000–4999
- ☐ 5. 5000–9999
- ☐ 6. 10,000–24,000
- ☐ 7. 25,000 +

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150

Name ______________________

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TEACHING and computers

March 1984
(Expires May 1)
READER SERVICE CARD

Please circle an entry for each category.

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- ☐ c. Junior High
- ☐ d. Senior High
- ☐ e. Junior/Senior
- ☐ f. College
- ☐ g. District
- ☐ h. State
- ☐ i. Federal/National
- ☐ j. Other

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- ☐ 3. No Change

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- ☐ d. Science
- ☐ e. Business/Vocational Education
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- ☐ 4. 1000–4999
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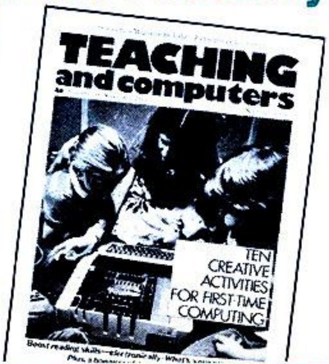

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number's factors.
Type of Software: 16K cassette, 32K disk
Price: $49
Policy: Backup included; 30-day preview
Source: Sunburst Communications, 39 Washington Ave., Pleasantville, NY 10570; 914/769-5030. □

Barbara Devir
Sixth Grade Teacher
Woodside School
Peekskill, NY

Social Studies Volume 2

Computer: *Apple*
Topic: *Social Studies*
Level: *Grades 3–12*

What is the capital of Yugoslavia? If you don't know, the computer will give you a hint: "The first letter of the capital is B." The answer, for those who still don't know, is Belgrade.

Students learn all about geography with this drill and practice program. "Continent" teaches students to associate 86 countries with their continents. In "Country," they learn the capitals and correct spelling of the countries. "States" teaches the capitals of 50 states, and "States2" shows their shapes and locations.

These programs work well with units on U.S. and world geography at any grade level. We even use the states programs with bright second grade students. It's a good idea to have a map handy until students are confident about using the program.

The other programs on the disk are appropriate for students in grades seven to twelve. They could also be used with gifted elementary students. "Bargain" introduces the process of collective bargaining. "Crisis" simulates the East-West Berlin conflict. Students act as governmental decision-makers in "Fail Safe." And "Minnag" teaches about the geographic regions of Minnesota.

The documentation is excellent. It includes background material, reproducible student readings and worksheets, maps, ideas for using the program in class, and creative follow-up activities.
Type of Software: Disk
Price: $48
Policy: Backup included; 30-day, money-back guarantee
Source: Minnesota Educational Computing Consortium (MECC), 3490 N. Lexington, St. Paul, MN 55112; 612/638-0627. □

Ann Dana
Microcomputer Consultant
Hinsdale Junior High School
Hinsdale, IL

Tiny Tutor

Computer: *Commodore 64, VIC-20*
Topic: *Math*
Level: *Grades K–2*

"Chug-a-chug." Here come the trolley cars. Three trolley cars plus four trolley cars equals seven cars on the track. This is a great way for children to learn addition and subtraction.

The problems in *Tiny Tutor* range in complexity from "1 - 0" to "10 + 9." There is no time limit for answering problems. Correct answers are rewarded with sound effects and a new problem train.

There are no supplemental written materials to accompany the program. But the graphics are super. And *Tiny Tutor* provides an excellent introduction to addition and subtraction.
Type of Software: Disk for Commodore 64; cassette for VIC-20
Price: $24.95 for disk; $19.95 for cassette
Policy: $5 backup
Source: Micro Software International, Inc., The Silk Mill, 44 Oak St., Newton Upper Falls, MA 02164; 617/527-7510. □

Nancy Watson
Assistant Professor
Burris School
Muncie, IN

(continued)

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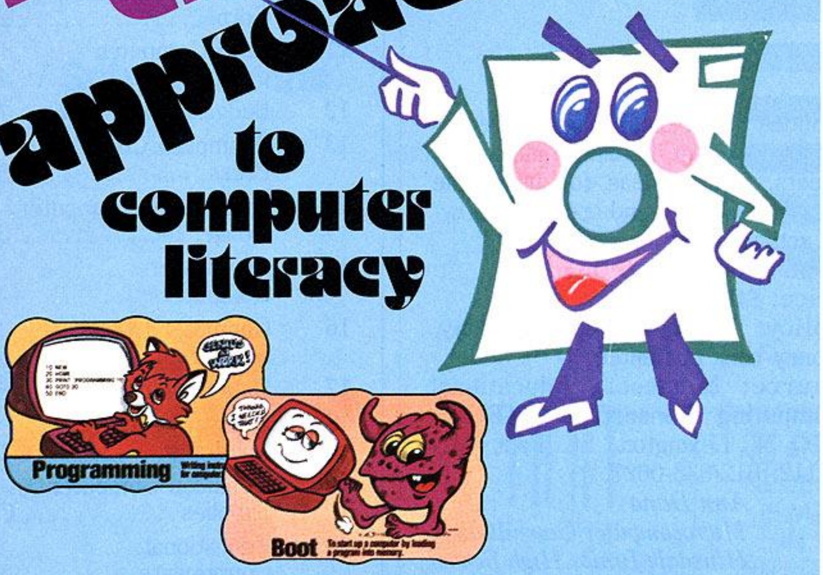
a plain english approach to computer literacy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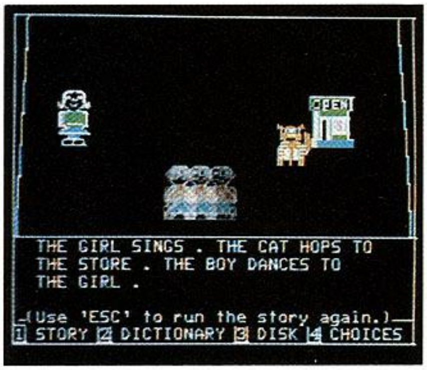
CIRCLE 28 ON READER SERVICE CARD



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THE GIRL SINGS . THE CAT HOPS TO
THE STORE . THE BOY DANCES TO
THE GIRL .
(Use 'ESC' to run the story again.)
1 STORY 2 DICTIONARY 3 DISK 4 CHOICES
```

An illustrated Story Machine *story.*

Story Machine

Computer: *Commodore 64, Atari (48K), Apple, IBM PC, IBM Compaq*
Topic: *Language Arts*
Level: *Grades K–4*

A student types, "The cat dances to the trees." Suddenly, on the screen, a cat dances toward some trees. The story continues with boys singing to fences and flowers hopping to girls.

The student is learning to write grammatical sentences with *Story Machine.* The program has 45 words in its vocabulary. The sentences require correct grammar and spelling, or they are erased from the screen. Students can save their stories on a separate disk for instant recall.

I have been searching for a program to help primary students develop writing skills. *Story Machine* does it! It is the most motivating language tool I have found for the computer yet.

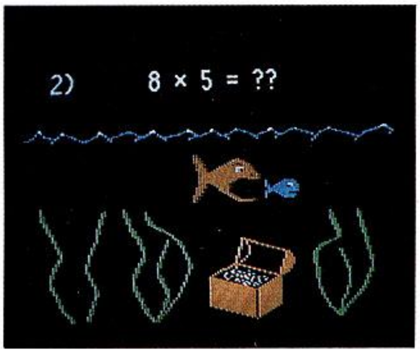
Type of Software: Disk for Apple, IBM, and Atari; ROM cartridge for Atari and Commodore
Price: $34.95 for disk; $39.95 for cartridge
Policy: $12 backup
Source: Spinnaker Software Corp., 215 First Street, Cambridge, MA 02142; 617/868-4700. ☐

Joe Herz
Primary Teacher
Camino Union School District
Camino, CA

Gulp!! & Arrow Graphics

Computer: *Atari, Apple*
Topic: *Math*
Level: *Grades 1–5*

You don't want the big fish to gobble up the little fish. So you answer 20 arithmetic problems correctly, as fast as you can. If you save the little fish, you get to play a bonus game. Otherwise, the predator will feast on your mistakes.



Try to find the answer to this multiplication problem before the big fish eats the little fish.

In *Gulp!!*, players learn addition and multiplication through timed, basic fact drills. Players choose the operation (addition or multiplication), the level of difficulty, and the speed.

The other game in this software package, *Arrow Graphics*, teaches problem solving and directionality. Players try to duplicate an arrow pattern by using letter commands. For example, L3R2L4 tells the computer to move three spaces to the left, two spaces to the right, and then four spaces to the left.

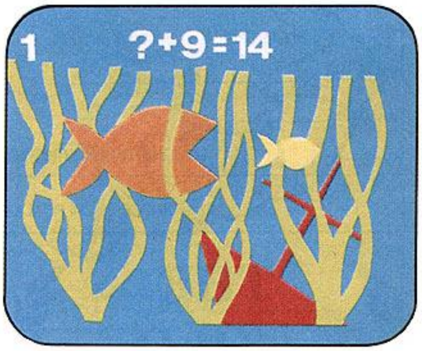
The exciting animation of both programs motivates children to learn arithmetic and directionality. The teacher's kit includes additional worksheets, games, enrichment ideas, stickers, and a letter to parents.

Use this package in a learning center to complement other activities. Try setting up other fishing games to help students learn basic facts.

Type of Software: Cassette for Atari 400; disk for others
Price: $34.95 cassette; $39.95 disk
Policy: $15 backup disk; 30-day refund
Source: Milliken Publishing Co., 1100 Research Blvd., St. Louis, MO 63132; 314/991-4220. ■

Beth Lazerick
Computer Education Coordinator
Moreland School
Shaker Heights, OH

Children practice subtraction skills with this math drill from Gulp!! & Arrow Graphics.



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INTRODUCTION TO LOGO FOR TEACHERS — *Training manual and diskette* — *Price: $49.00*

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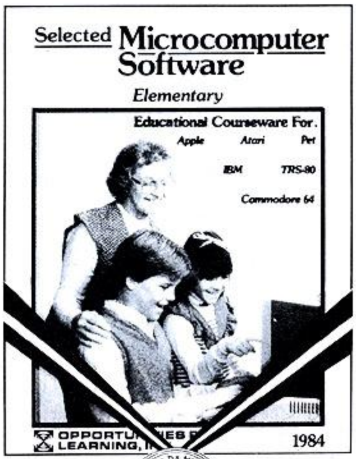

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If you want a computer to do a job for you, you not only have to tell it how to do every single part of the job, you also need to tell the computer in what order to do each part. The next two pages are worksheets that introduce students to the importance of doing a job in step-by-step order. Tear the sheets out, run them off, and you've got the raw material for a computer lesson on sequence.

Tell students that they perform most actions, or "jobs," in a step-by-step order. For example, if Patty wants to take her pet monkey for a walk, she (1) finds the monkey's leash, (2) fastens the leash to the monkey's collar, (3) holds the leash in her hand, (4) opens the front door, and (5) leads the monkey outside by the leash.

Ask students what would happen if Patty had performed step three before step four. (The monkey might have escaped through the open door.) The order a job is performed in then is very important.

Pass out the worksheet entitled "How to Make Toast." The sheet shows four steps a robot might take to make toast. Students are to number the steps in the order the robot must perform them. (Answers from left to right, top to bottom are: 3, 1, 2, 4.)

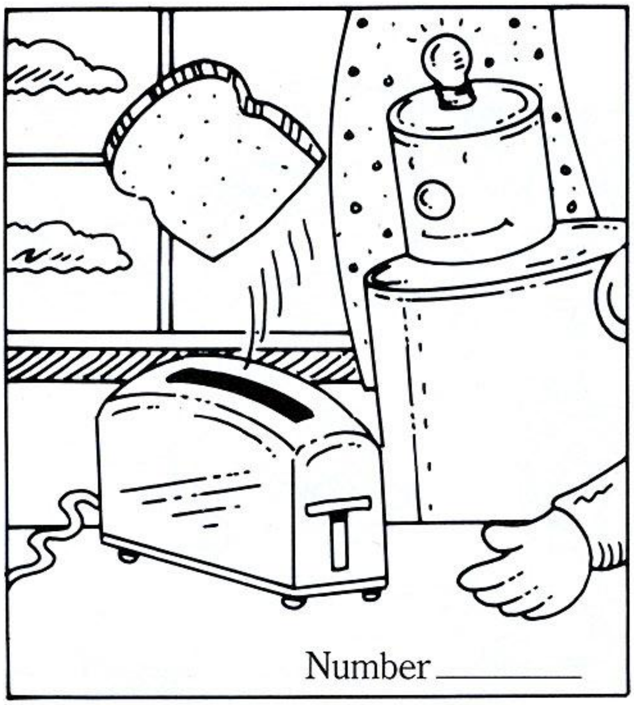
Ask students to draw a picture on the back of the worksheet that shows what would happen if the robot performed the first step before the second step. (Answer: The picture should show the plastic bread wrapper in the toaster.)

Pass out the worksheet entitled "Jobs Have Order." The sheet contains steps needed to perform two jobs. One job is to make a snowman; the other, to wash a dog. Tell students to number the steps for each job. (Answers: Make a Snowman—2, 3, 1; Wash a Dog—3, 2, 1.)

NAME__________________________

How to Make Toast

Put this picture story in the right order.
Use numbers 1, 2, 3, 4.



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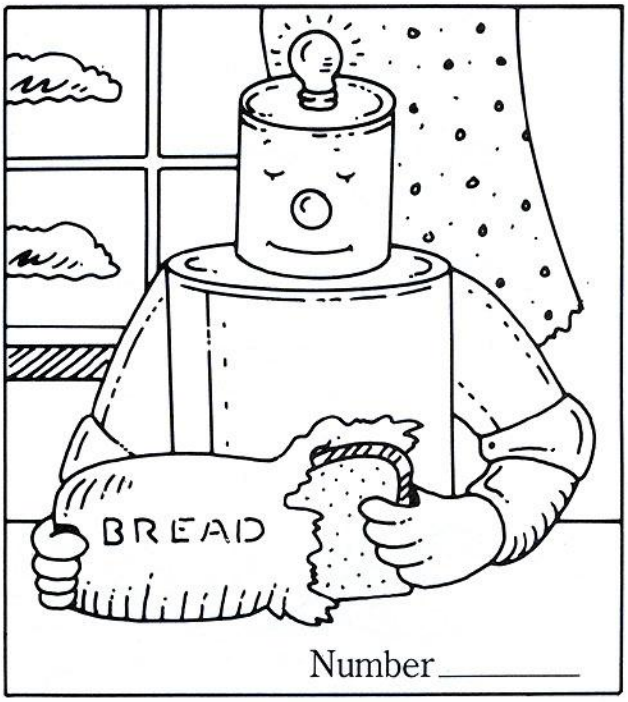

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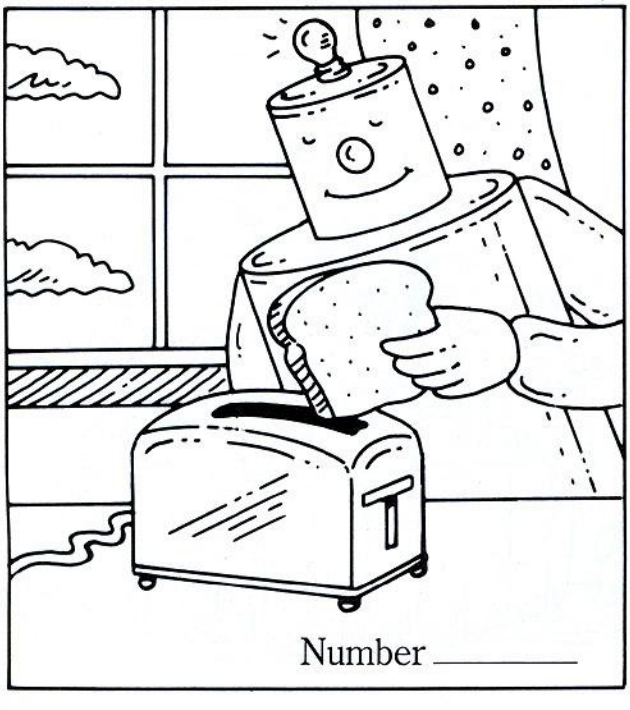

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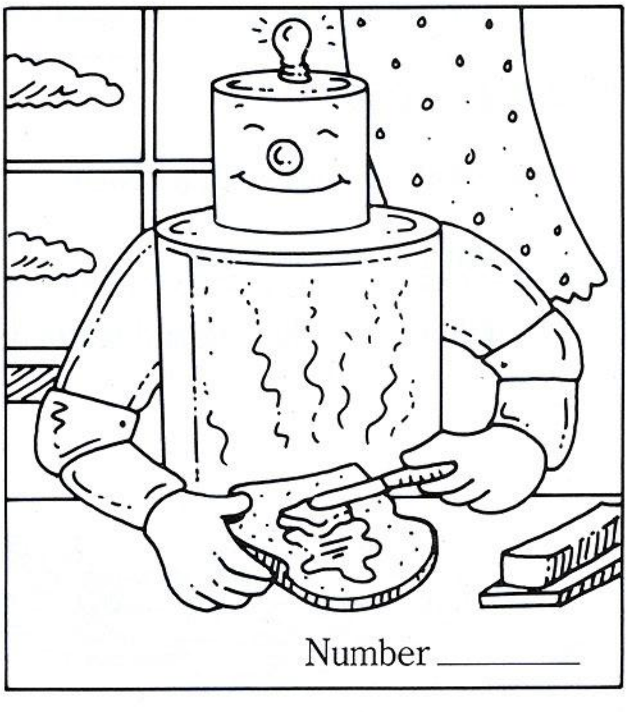

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Theresa Anderko

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NAME ____________________

Jobs Have Order

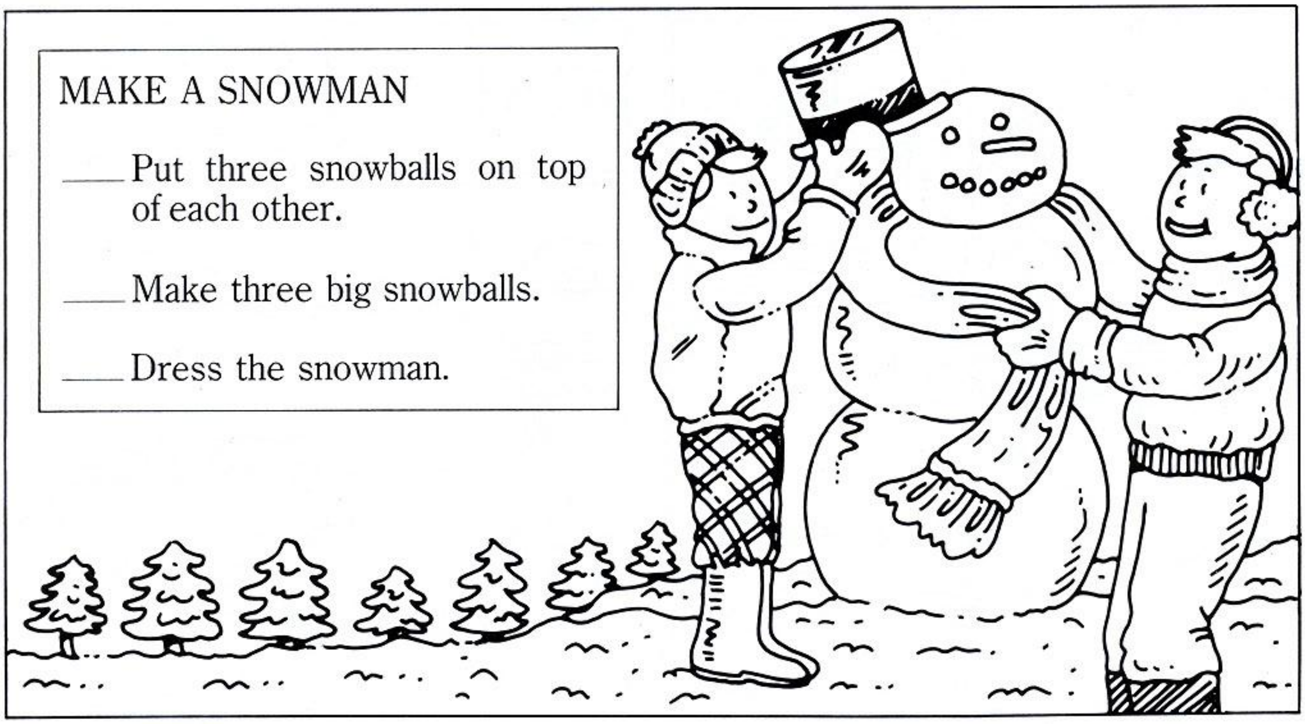
Put the steps of each job in the right order.
Use numbers 1, 2, 3.

MAKE A SNOWMAN

____ Put three snowballs on top of each other.

____ Make three big snowballs.

____ Dress the snowman.

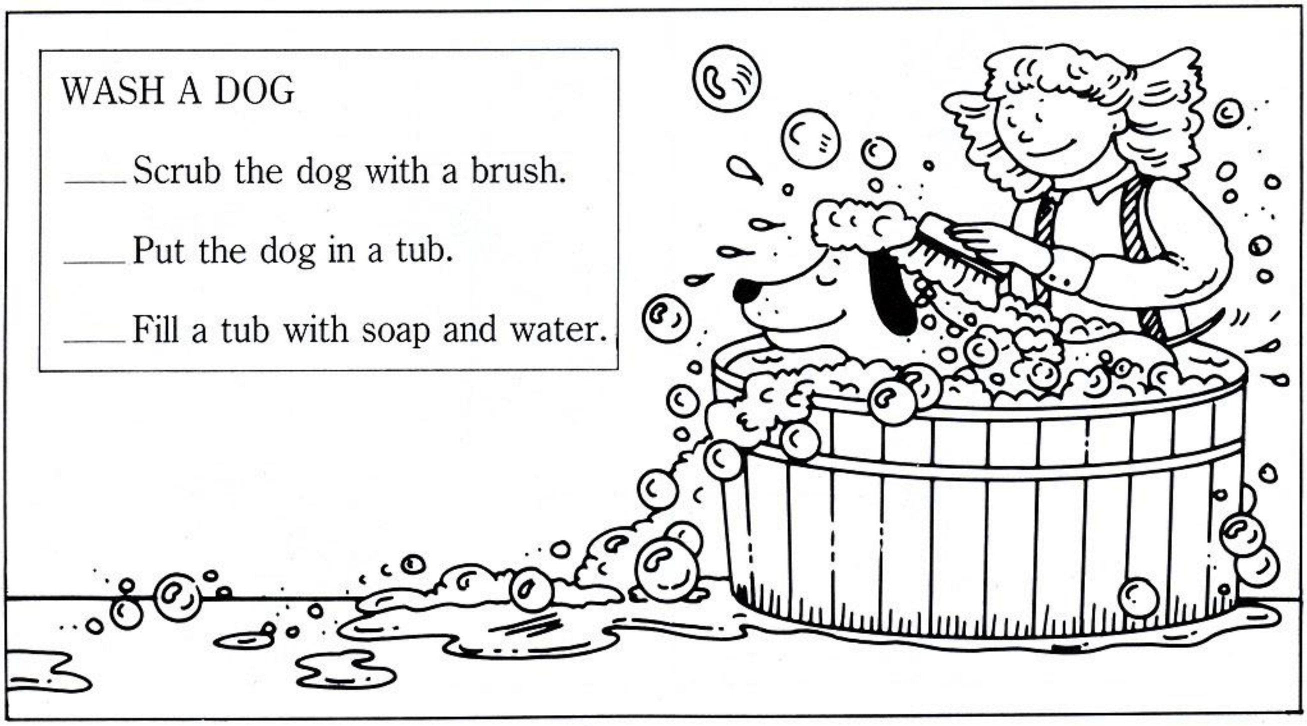


WASH A DOG

____ Scrub the dog with a brush.

____ Put the dog in a tub.

____ Fill a tub with soap and water.



Theresa Anderko

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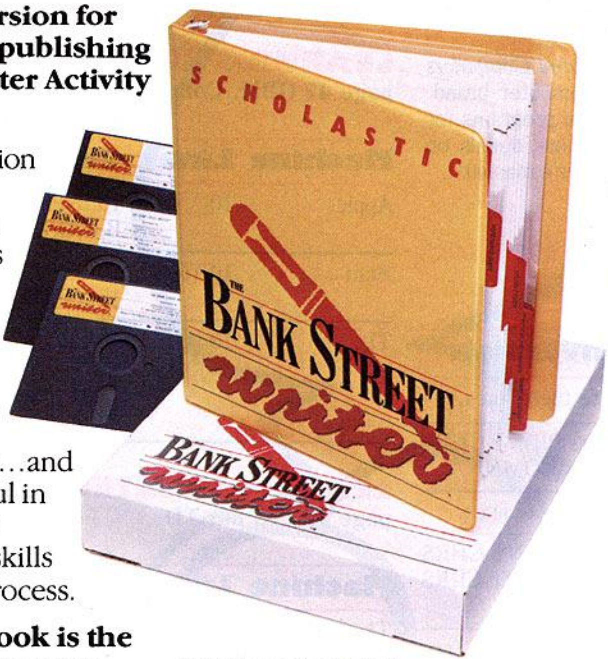

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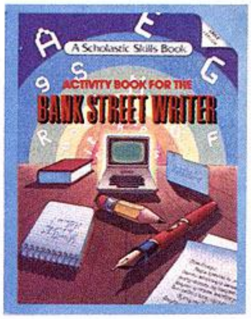

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CIRCLE 34 ON READER SERVICE CARD

How to Convert *T&C* Programs to Other Machines

COMMAND CONVERSION CHART

Some of the articles in this issue of *Teaching and Computers* contain program listings specific to one microcomputer brand. Use this conversion chart to modify and enhance programs for use on other brands of microcomputers. For more details on how to use specific commands, refer to your user's manual.

PROGRAM OF THE MONTH: *Computer Blood Bank,* page 46 (Atari)

Machine	Lines	Conversion
Apple	1, 2	Delete these lines.
	4, 50, 170, 210, 500, 560, 800, 3010	Change PRINT CHR$ (125) to HOME.
Commodore	1, 2	Delete these lines.
	4, 50, 170, 210, 500, 560, 800, 3010	Change PRINT CHR$ (125) to PRINT CHR$ (147).

Editor's Note: The VIC-20 displays 22 characters per line. Shorten print statements or add extra print statements to accommodate the VIC-20 screen.

Radio Shack	1, 2	Delete these lines.
	4, 50, 170, 210, 500, 560, 800, 3010	Change PRINT CHR$ (125) to CLS.
	30, 150, 2030, 3110	Change PRESS RETURN to PRESS ENTER.
	840	Change X = RND (100*INT(1)) + 1 to X = RND (100).

Editor's Note: The TRS-80 Model III displays 64 characters per line. You may want to include more text in the print statements.

TI	1, 2	Delete these lines.
	4, 50, 170, 210, 500, 560, 800, 3010	Change PRINT CHR$ (125) to CALL CLEAR.
	30, 150, 2030, 3110	Change PRESS RETURN to PRESS ENTER.
	70, 140, 180, 520, 830, 890, 1010, 2010, 2030 3050, 3070, 3100	Put PRINT statements on separate lines. Example: 70 PRINT 75 PRINT " 1. ANEMIA"

LEARNING CENTER CARD #22, page 47 (IBM, Commodore, Radio Shack)

Machine	Lines	Conversion
Apple	10	10 INPUT "TYPE IN... TEST."; B,C,D,E
Atari	10,15	10 PRINT "TYPE IN... TEST." 15 INPUT B,C,D,E
TI	10 to 14	10 PRINT "TYPE IN... TEST." Put INPUT statements on separate lines. For example, 11 INPUT A, 12 INPUT B, and so on.

LEARNING CENTER CARD #23, page 49 (All but TI)

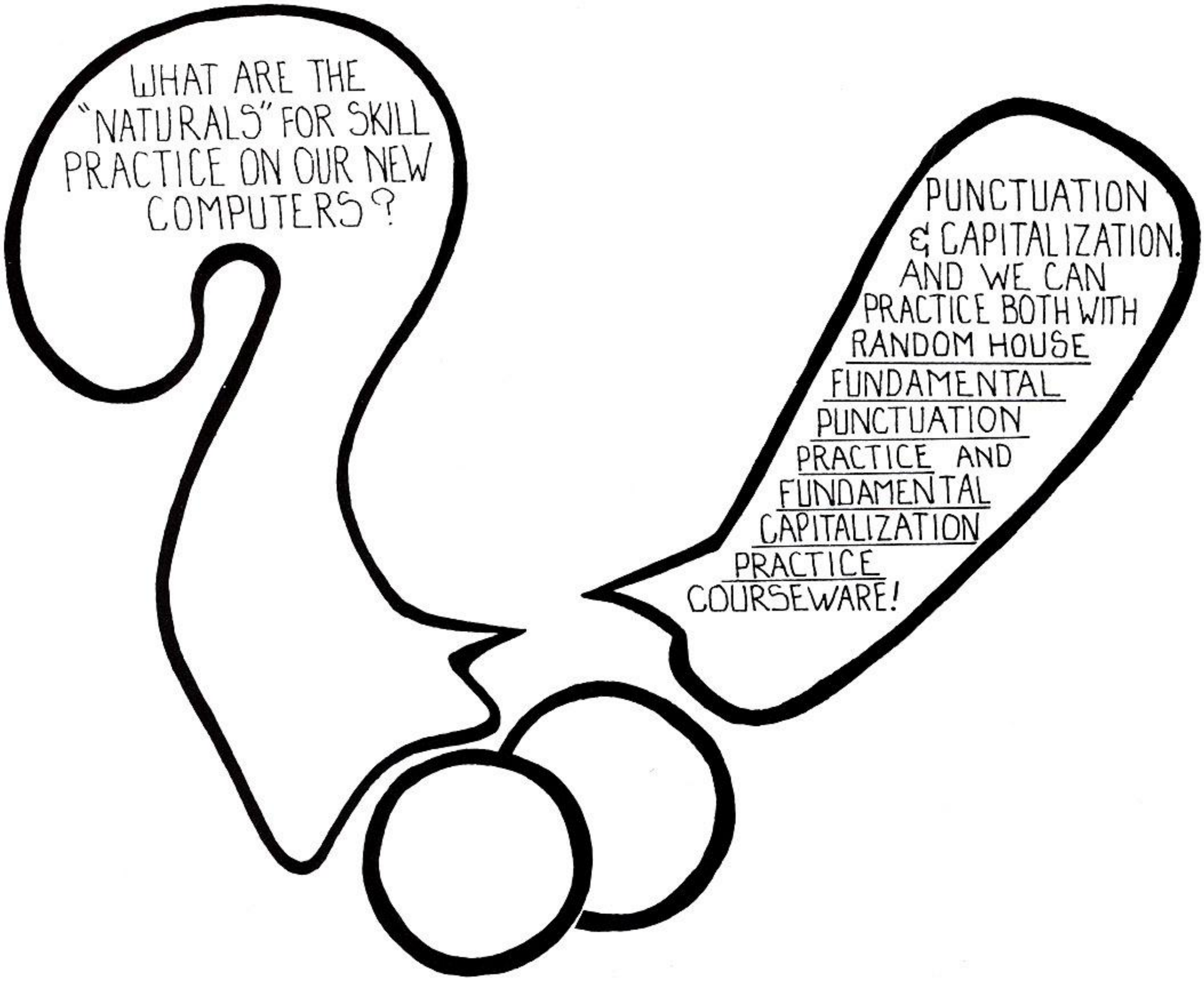
Machine	Lines	Conversion
TI	20 to 25	Put INPUT commands on separate lines. For example, 20 INPUT A, 21 INPUT B, and so on.

LEARNING CENTER CARD #24, page 49 (Commodore, IBM, Radio Shack)

Machine	Lines	Conversion
Apple	10, 30	Add a question mark and space after each question.
Atari	10, 30	10 PRINT "HOW... CHECKPOINT?": INPUT A,B,C, D,E,F,G,H 30 PRINT "HOW... MAKE?": INPUT X
TI	10 to 18	10 PRINT "HOW... CHECKPOINT?" Put INPUT statements on separate lines. For example, 11 INPUT A, 12 INPUT B, 13 INPUT C, and so on.

KID'S PAGE: *Fleet of Rockets,* page 45 (All but TI)

Machine	Lines	Conversion
TI	130, 135, 137	Put PRINT statements on separate lines. Program should read: 130 PRINT 135 PRINT 137 PRINT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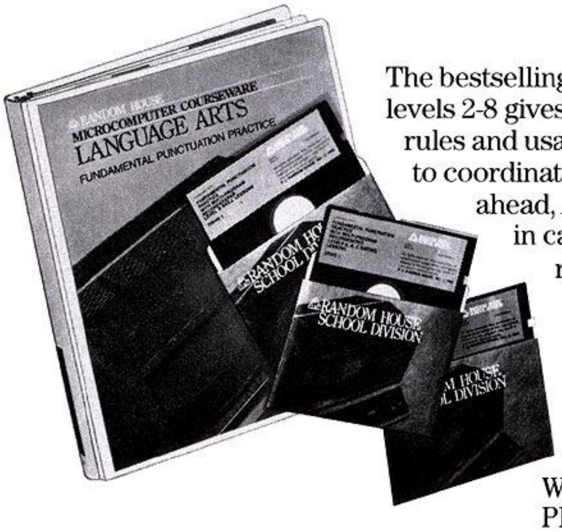
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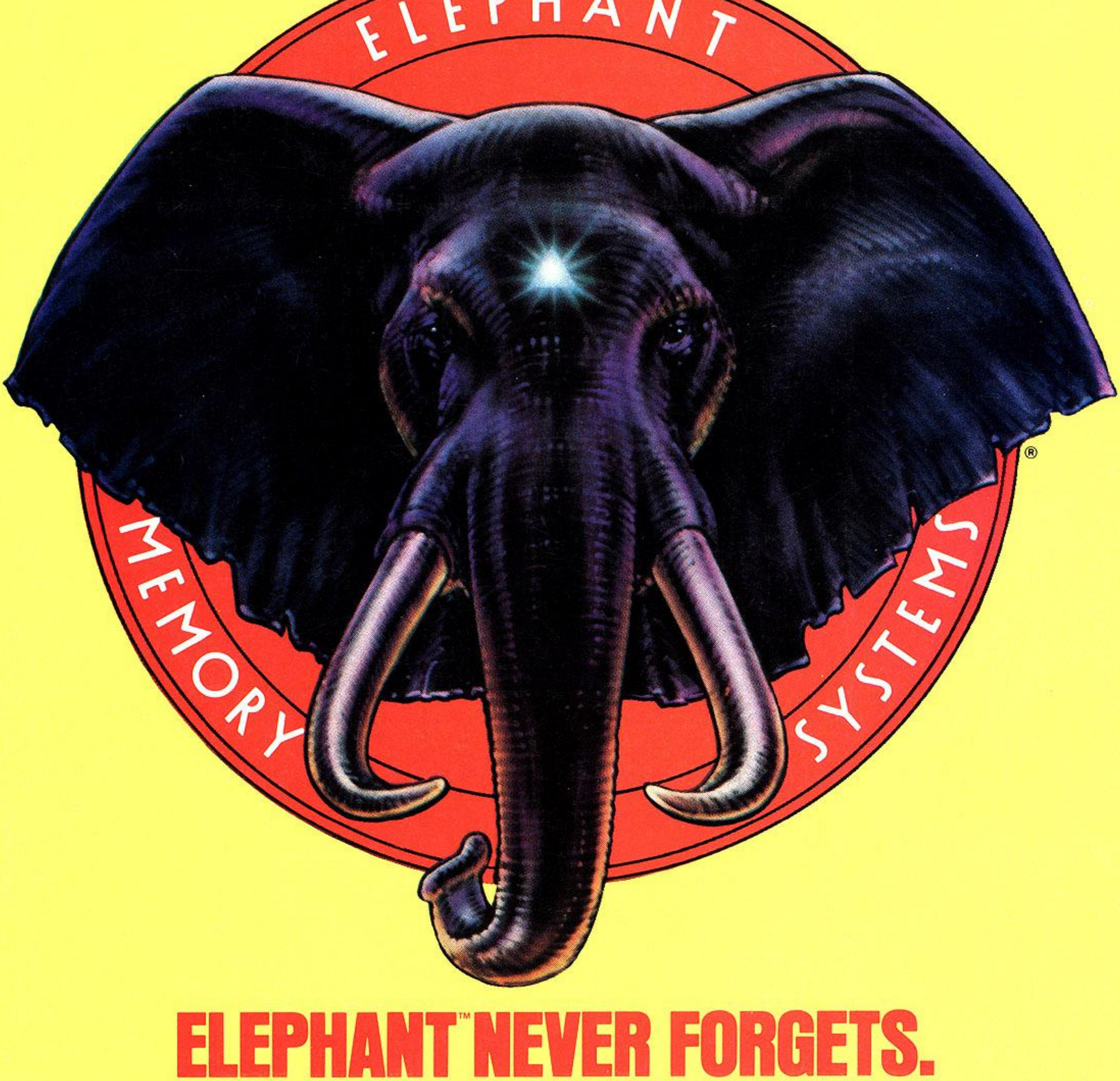

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